FIG. 1

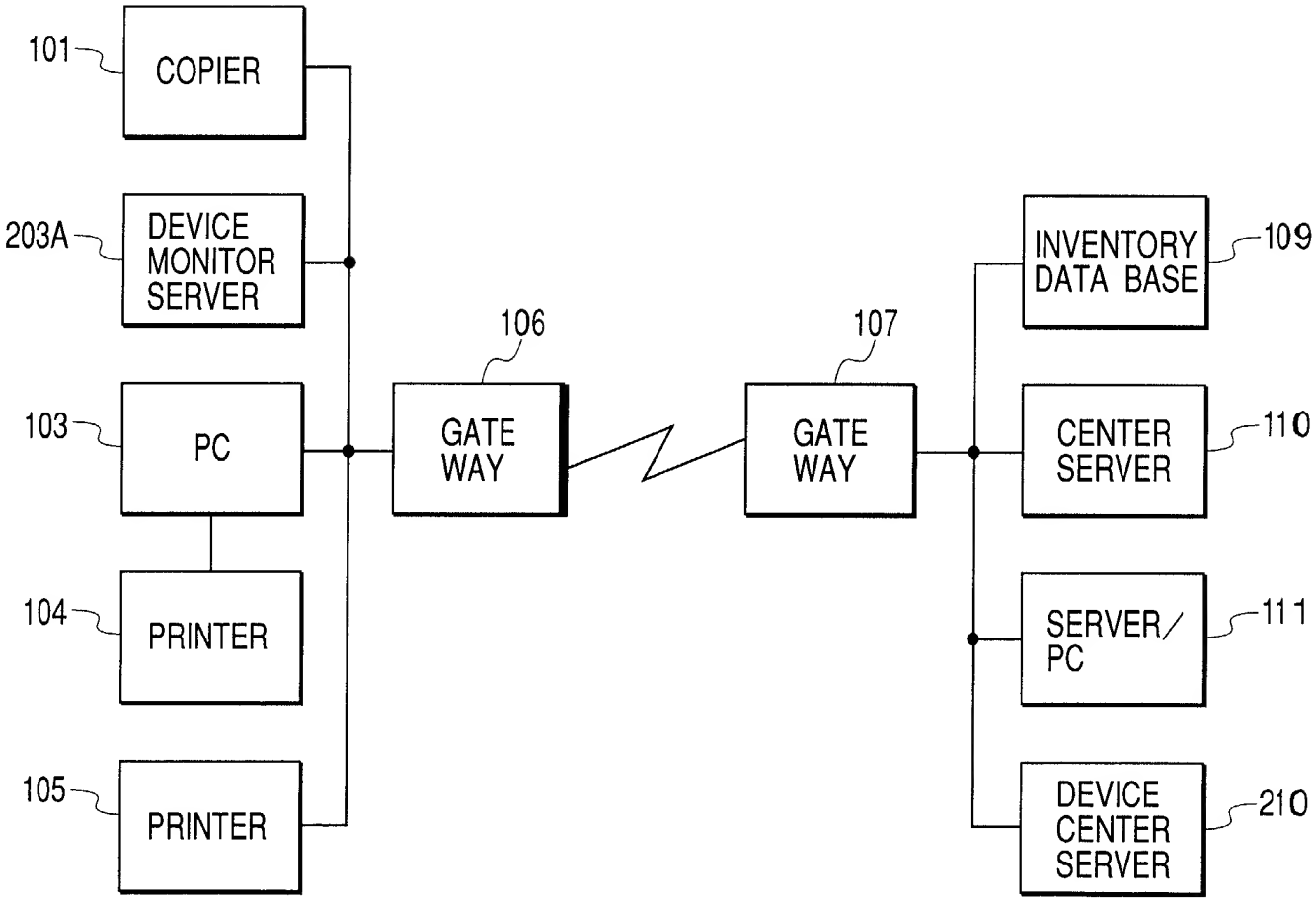
101
COPIER
203A
DEVICE MONITOR SERVER
103
PC
104
PRINTER
105
PRINTER
106
GATE WAY
107
GATE WAY
INVENTORY DATA BASE
109
CENTER SERVER
110
SERVER/ PC
111
DEVICE CENTER SERVER
210

FIG. 2

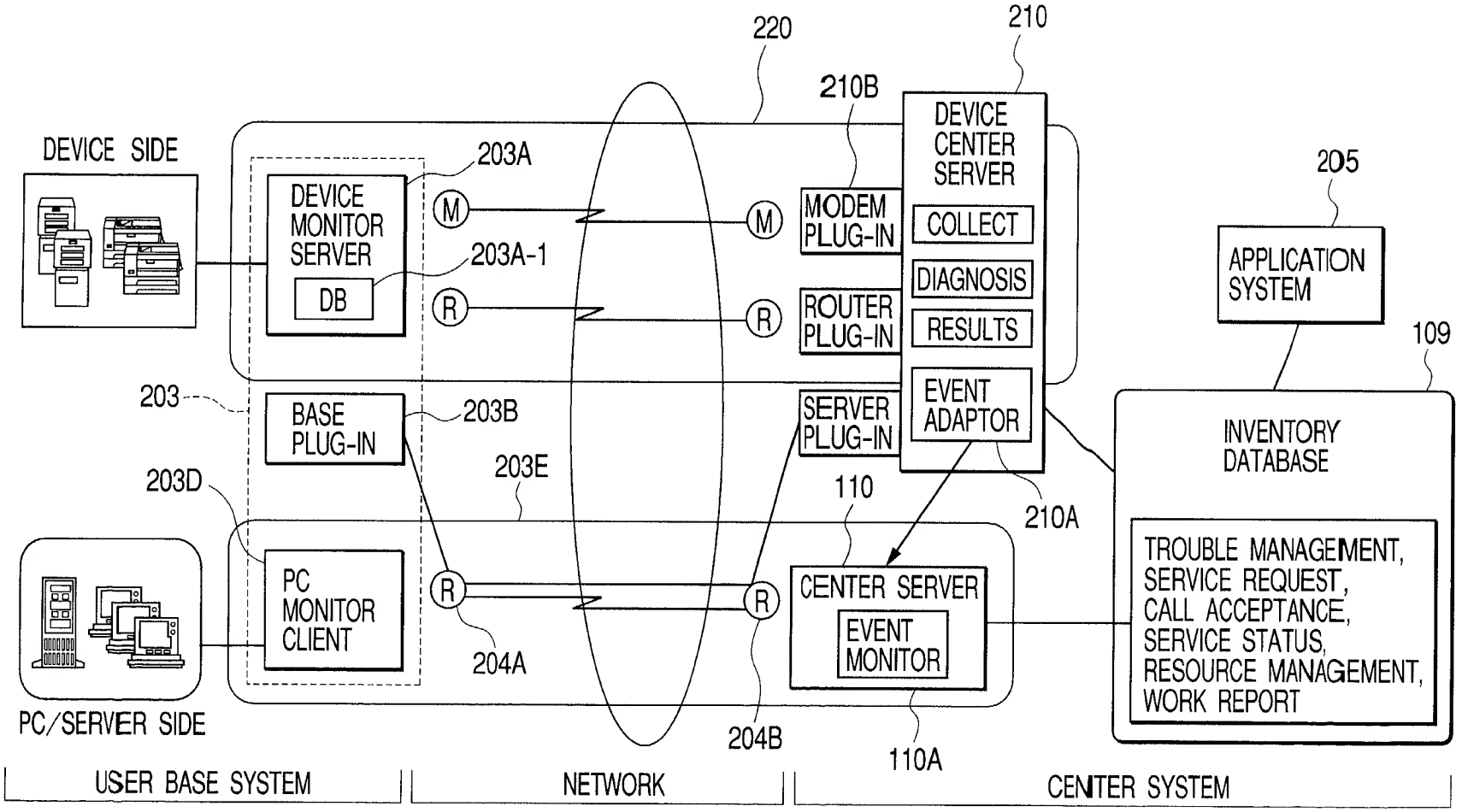
220
210
210B
DEVICE SIDE
DEVICE CENTER SERVER
203A
205
DEVICE MONITOR SERVER
DB
203A-1
M
M
MODEM PLUG-IN
COLLECT
APPLICATION SYSTEM
DIAGNOSIS
R
R
ROUTER PLUG-IN
RESULTS
109
203
BASE PLUG-IN
203B
SERVER PLUG-IN
EVENT ADAPTOR
INVENTORY DATABASE
203E
203D
110
210A
PC MONITOR CLIENT
R
R
CENTER SERVER
EVENT MONITOR
TROUBLE MANAGEMENT,
SERVICE REQUEST,
CALL ACCEPTANCE,
SERVICE STATUS,
RESOURCE MANAGEMENT,
WORK REPORT
204A
204B
110A
PC/SERVER SIDE
USER BASE SYSTEM
NETWORK
CENTER SYSTEM

FIG. 3

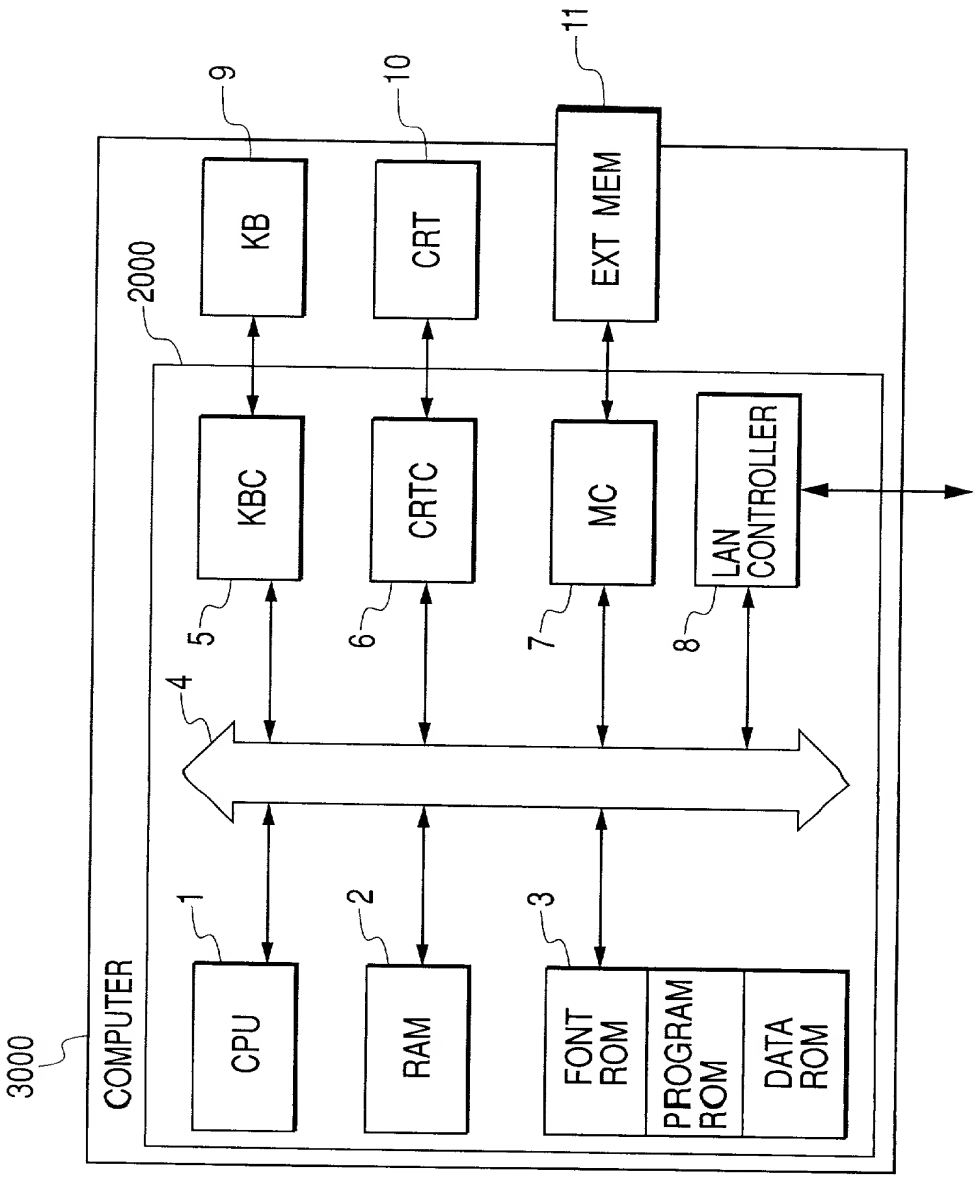
3000
COMPUTER
2000
CPU
RAM
FONT ROM
PROGRAM ROM
DATA ROM
KBC
CRTC
MC
LAN CONTROLLER
KB
CRT
EXT MEM
1
2
3
4
5
6
7
8
9
10
11

FIG. 4

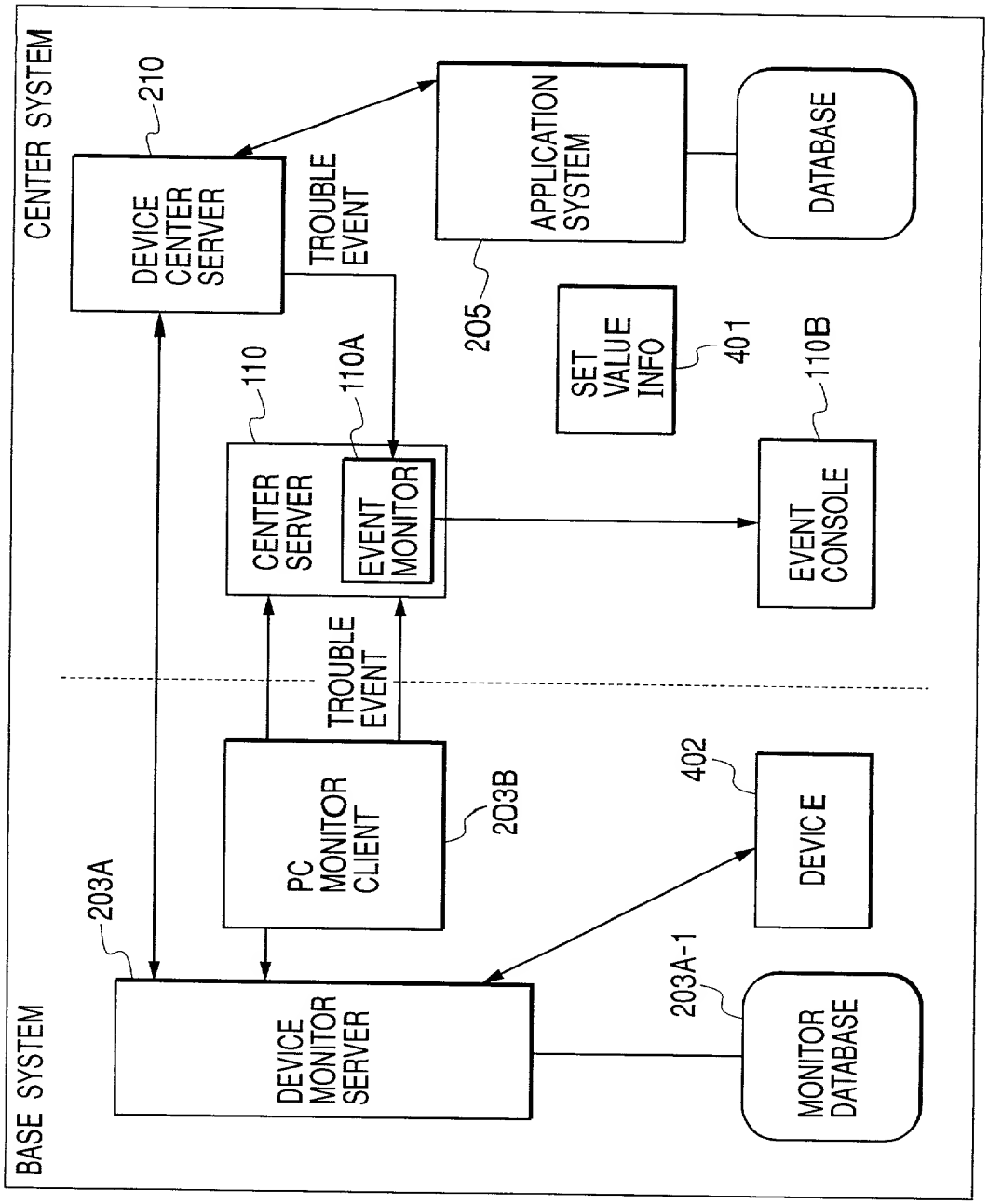
CENTER SYSTEM
DEVICE CENTER SERVER
210
TROUBLE EVENT
APPLICATION SYSTEM
DATABASE
205
SET VALUE INFO
401
110
110A
CENTER SERVER
EVENT MONITOR
110B
EVENT CONSOLE
TROUBLE EVENT
BASE SYSTEM
203A
PC MONITOR CLIENT
203B
402
DEVICE
DEVICE MONITOR SERVER
203A-1
MONITOR DATABASE

FIG. 5

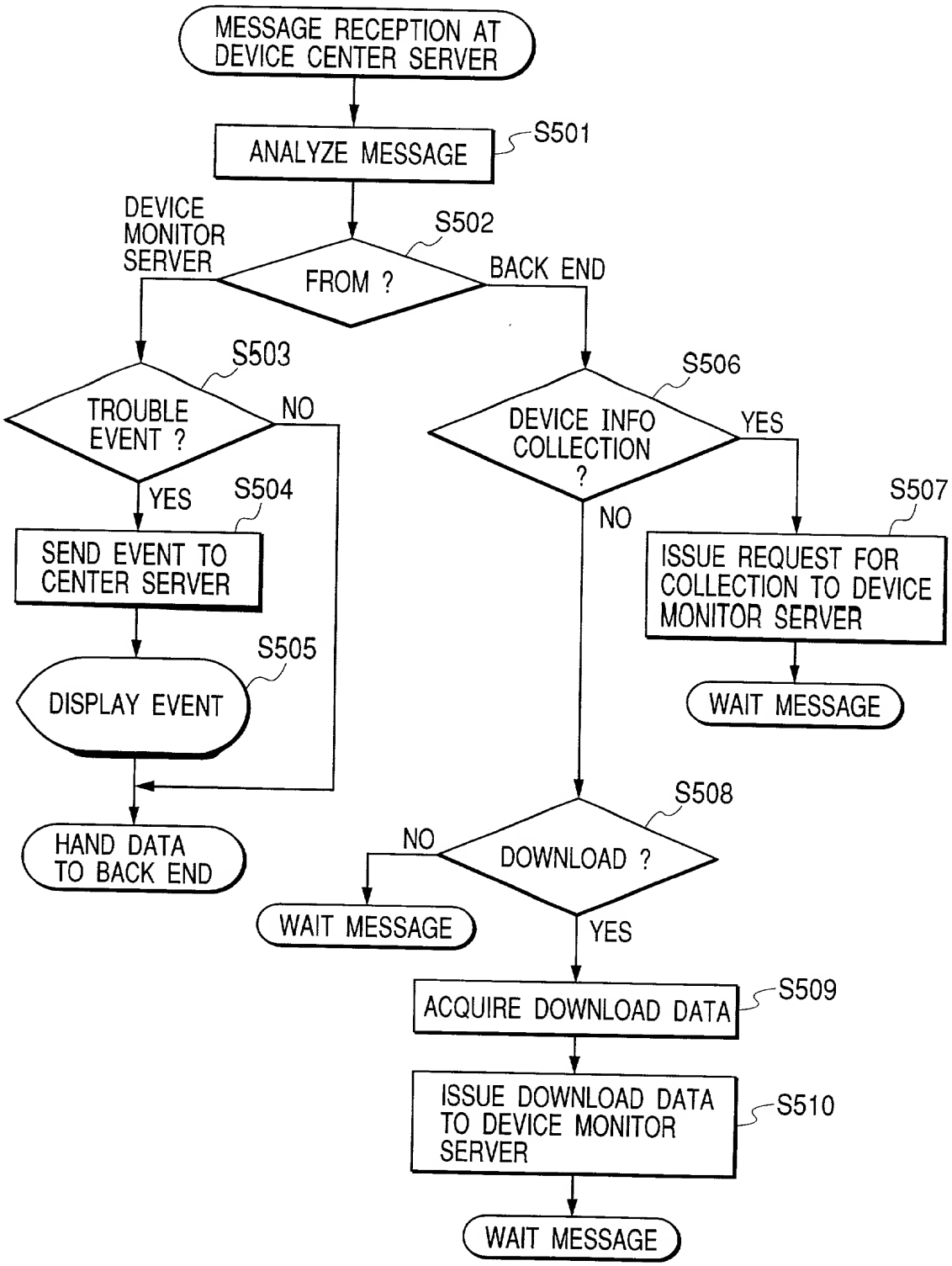

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FIG. 6

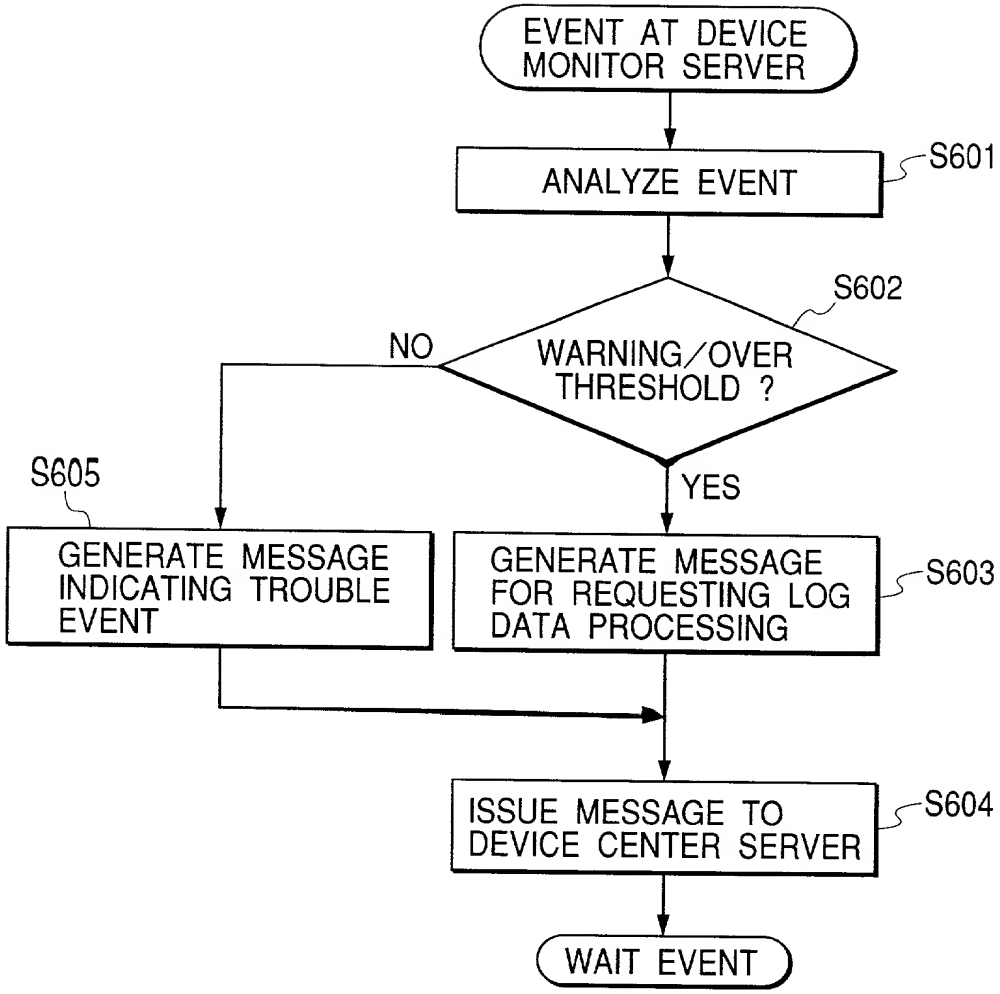
EVENT AT DEVICE MONITOR SERVER
ANALYZE EVENT
S601
S602
WARNING/OVER THRESHOLD ?
NO
YES
S605
GENERATE MESSAGE INDICATING TROUBLE EVENT
GENERATE MESSAGE FOR REQUESTING LOG DATA PROCESSING
S603
ISSUE MESSAGE TO DEVICE CENTER SERVER
S604
WAIT EVENT

FIG. 7

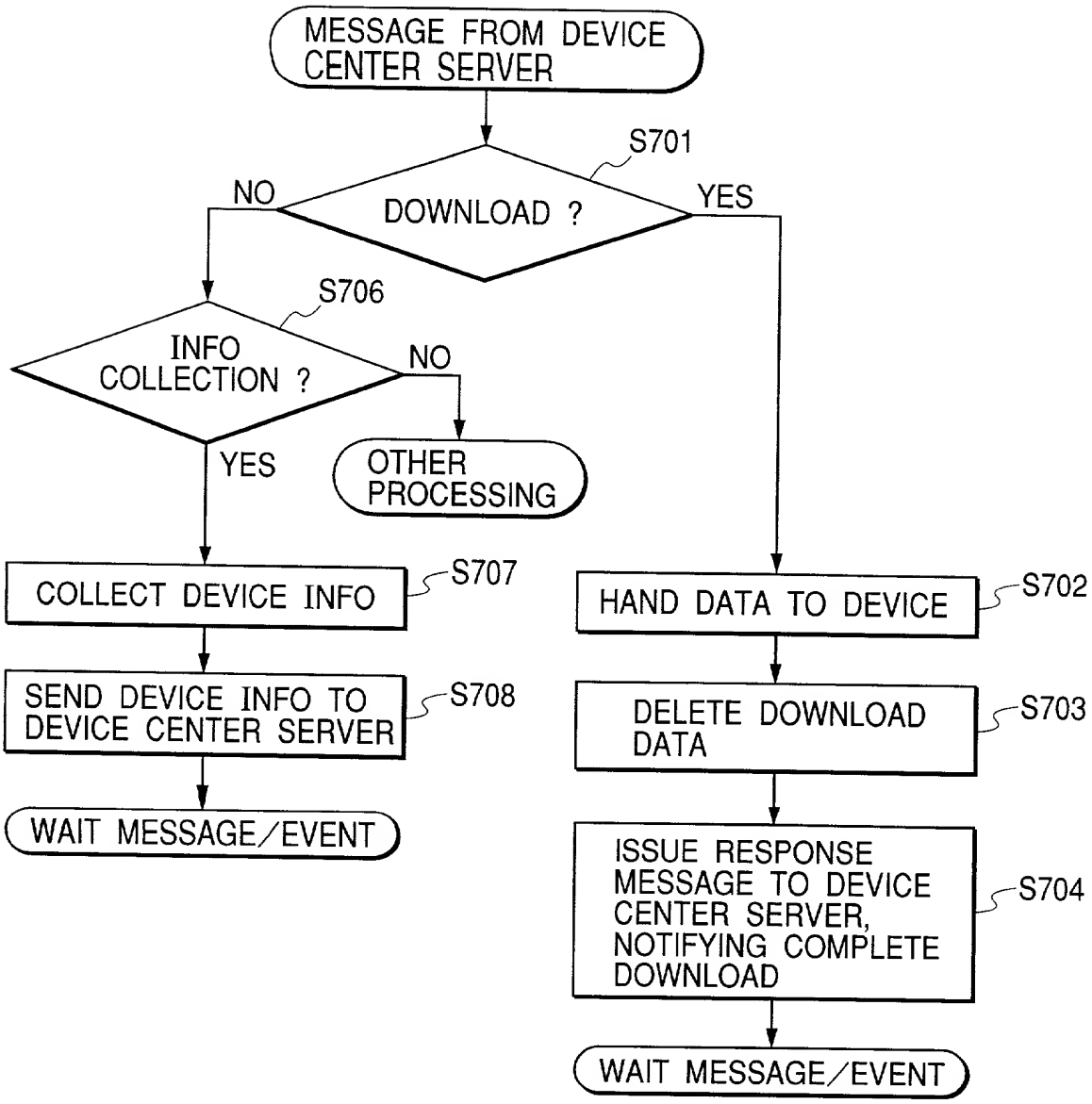
MESSAGE FROM DEVICE CENTER SERVER
S701
DOWNLOAD ?
NO
YES
S706
INFO COLLECTION ?
NO
YES
OTHER PROCESSING
COLLECT DEVICE INFO
S707
SEND DEVICE INFO TO DEVICE CENTER SERVER
S708
WAIT MESSAGE/EVENT
HAND DATA TO DEVICE
S702
DELETE DOWNLOAD DATA
S703
ISSUE RESPONSE MESSAGE TO DEVICE CENTER SERVER, NOTIFYING COMPLETE DOWNLOAD
S704
WAIT MESSAGE/EVENT

FIG. 8

FIELD	LENGTH (BYTE)	USE
TAG		
FLAG	1	B'100'=TCP/IP B'010'=DIAL-UP B'001'=E-MAIL B'0'=SIMPLE OR FINAL DATA B'1'=CONTINUED
DATA TYPE	1	X'01' : REQUEST AUTHENTICATION X'02' : REQUEST PARAMETER SETTING X'04' : REQUEST DEVICE INFO X'08' : REQUEST EVENT INFO X'10' : RESPONSE X'80' : REQUEST DISCONNECTION
JOB ID	1	X'00' : SET PARAMETER X'01' : ACQUIRE DEVICE INFO X'02' : NOTIFY EVENT INFO
RETURN	1	FOR X'10' : RETURN VALUE FOR X'80' : REASON FOR DISCONNECTION FOR OTHER DATA TYPE : SET X'00'
DATA LENGTH	4	DATA LENGTH (NETWORK BYTE ORDER)
DATA	VARIABLE LENGTH	DATA

EP 0 747 824 A1

FIG. 9

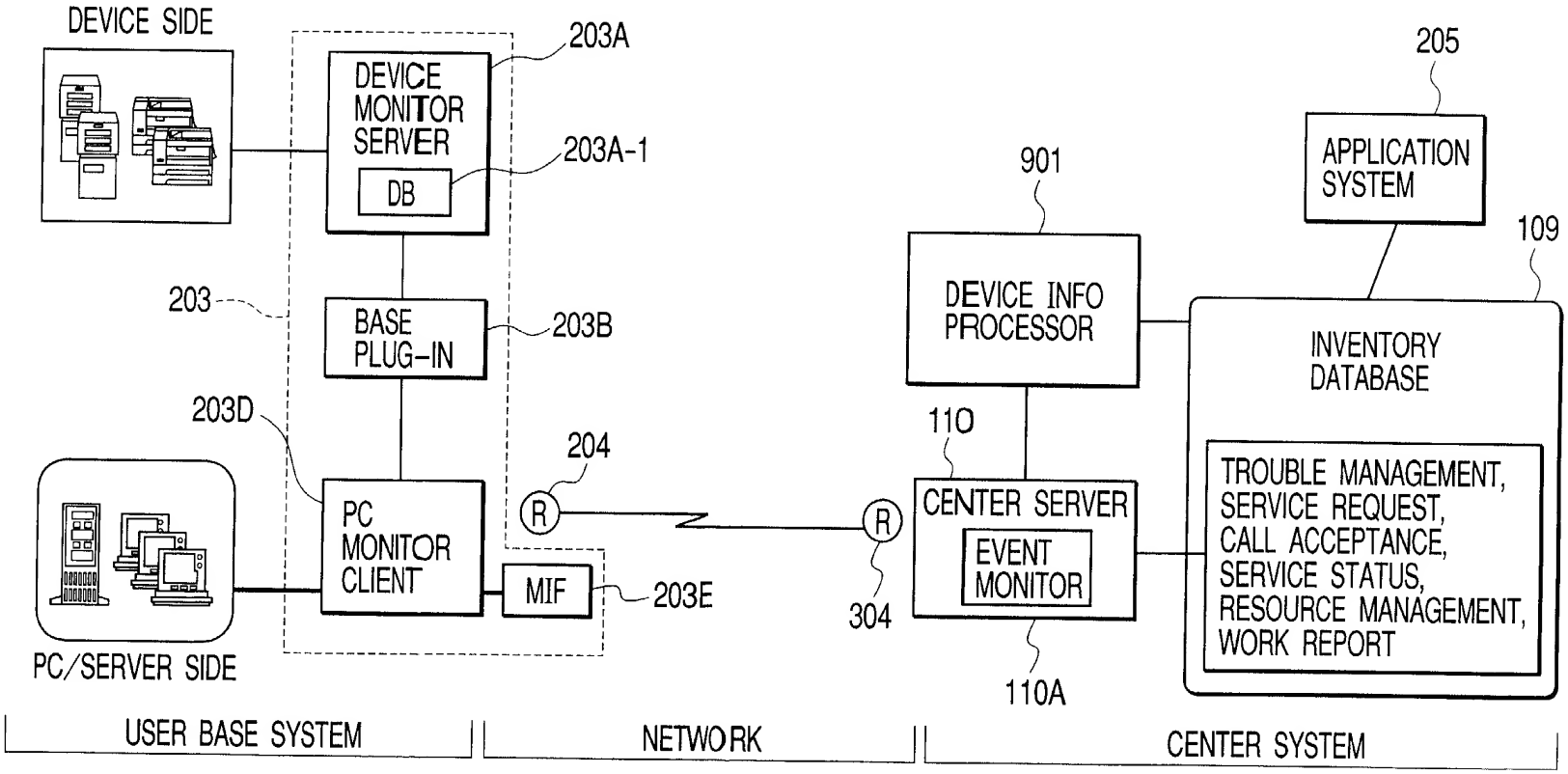
DEVICE SIDE
203A
DEVICE MONITOR SERVER
DB
203A-1
205
APPLICATION SYSTEM
901
109
203
BASE PLUG-IN
203B
DEVICE INFO PROCESSOR
INVENTORY DATABASE
203D
110
204
R
R
CENTER SERVER
EVENT MONITOR
TROUBLE MANAGEMENT,
SERVICE REQUEST,
CALL ACCEPTANCE,
SERVICE STATUS,
RESOURCE MANAGEMENT,
WORK REPORT
PC MONITOR CLIENT
MIF
203E
304
PC/SERVER SIDE
110A
USER BASE SYSTEM
NETWORK
CENTER SYSTEM

FIG. 10

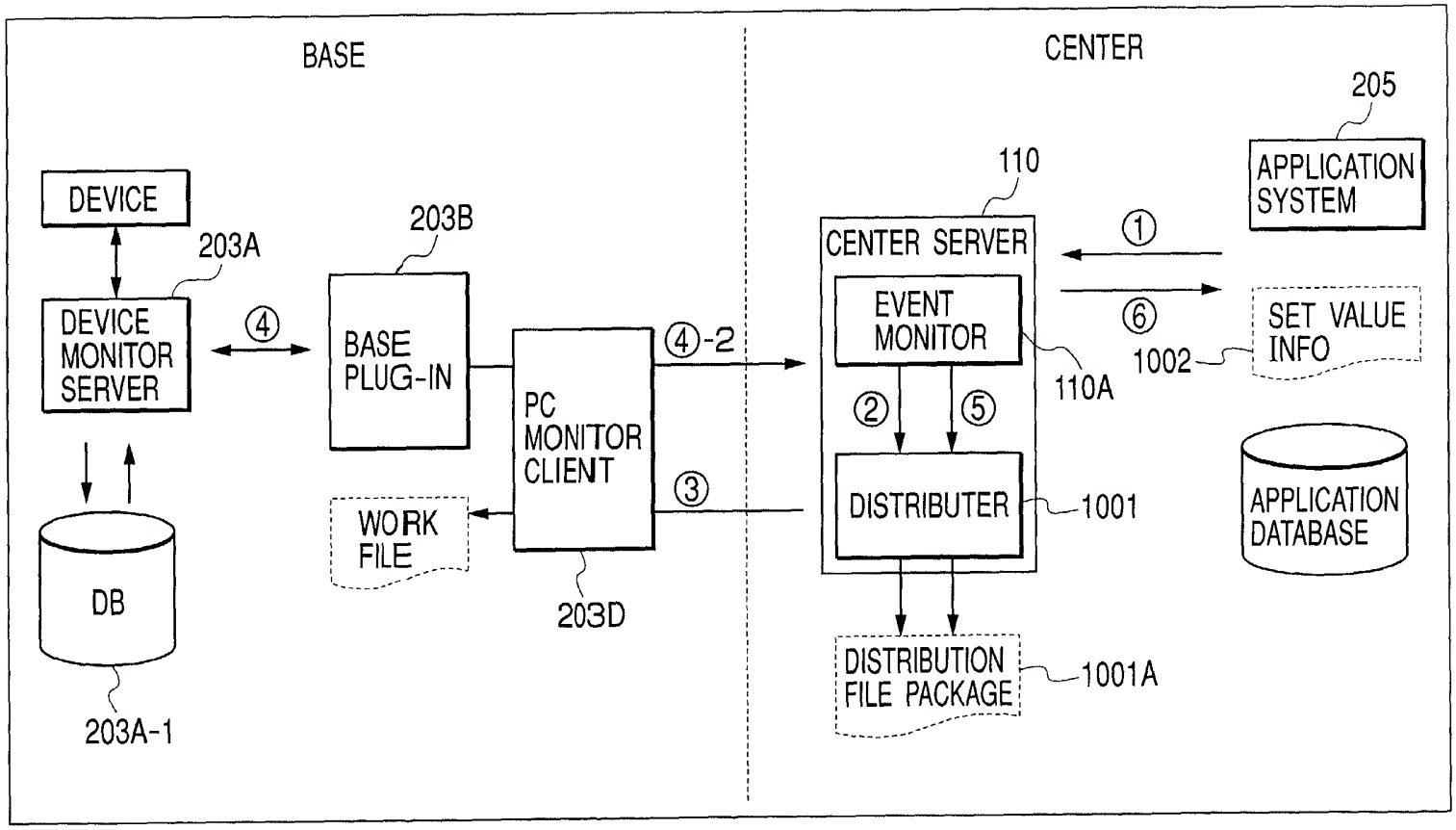
BASE
CENTER
205
APPLICATION SYSTEM
110
CENTER SERVER
DEVICE
203A
DEVICE MONITOR SERVER
④
203B
BASE PLUG-IN
PC MONITOR CLIENT
④-2
①
⑥
EVENT MONITOR
SET VALUE INFO
1002
110A
②
⑤
③
WORK FILE
DISTRIBUTER
1001
APPLICATION DATABASE
DB
203D
DISTRIBUTION FILE PACKAGE
1001A
203A-1

FIG. 11

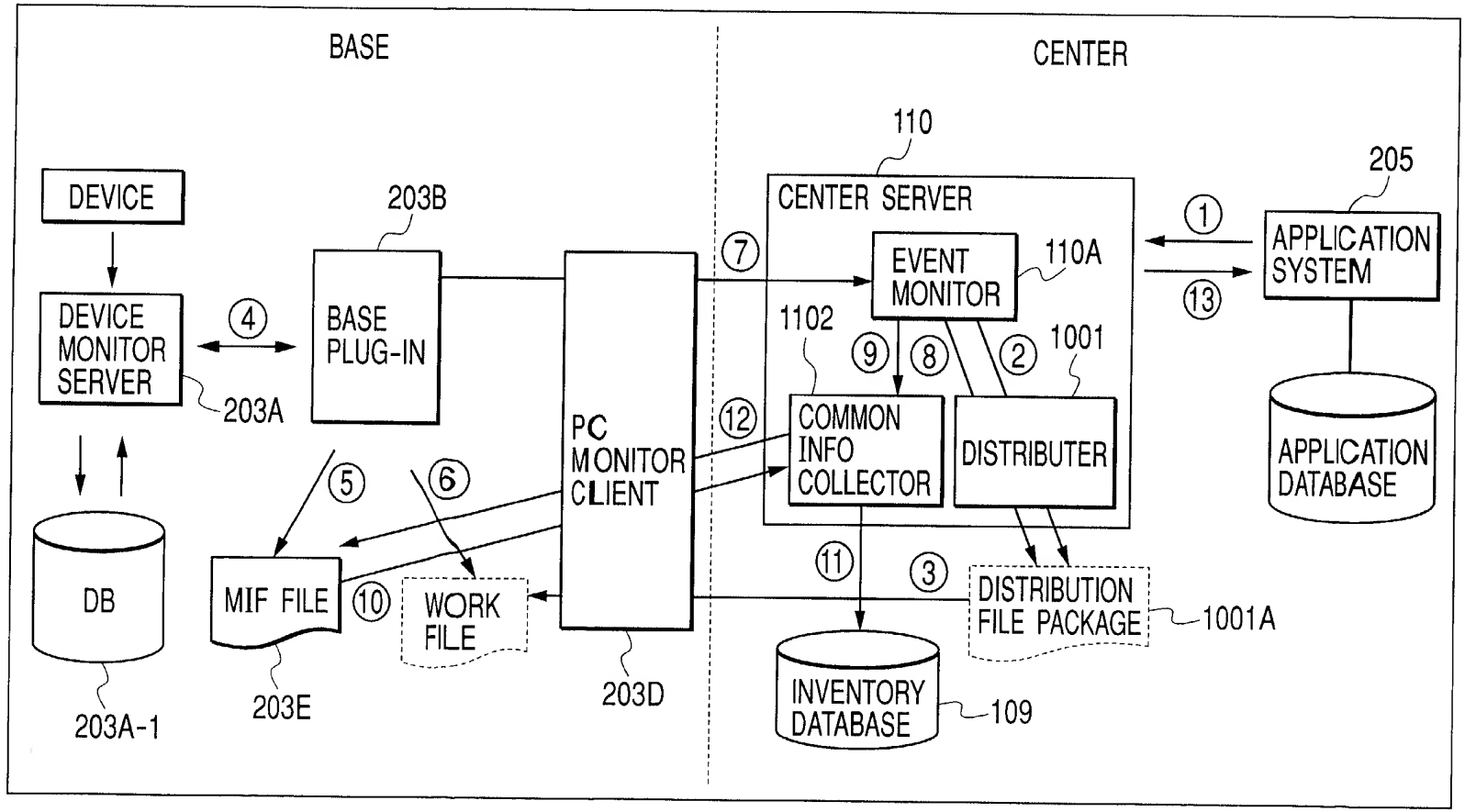
BASE
CENTER
110
205
DEVICE
203B
CENTER SERVER
APPLICATION SYSTEM
EVENT MONITOR
110A
DEVICE MONITOR SERVER
BASE PLUG-IN
1102
1001
203A
PC MONITOR CLIENT
COMMON INFO COLLECTOR
DISTRIBUTER
APPLICATION DATABASE
DB
MIF FILE
WORK FILE
DISTRIBUTION FILE PACKAGE
1001A
203A-1
203E
203D
INVENTORY DATABASE
109

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FIG. 12

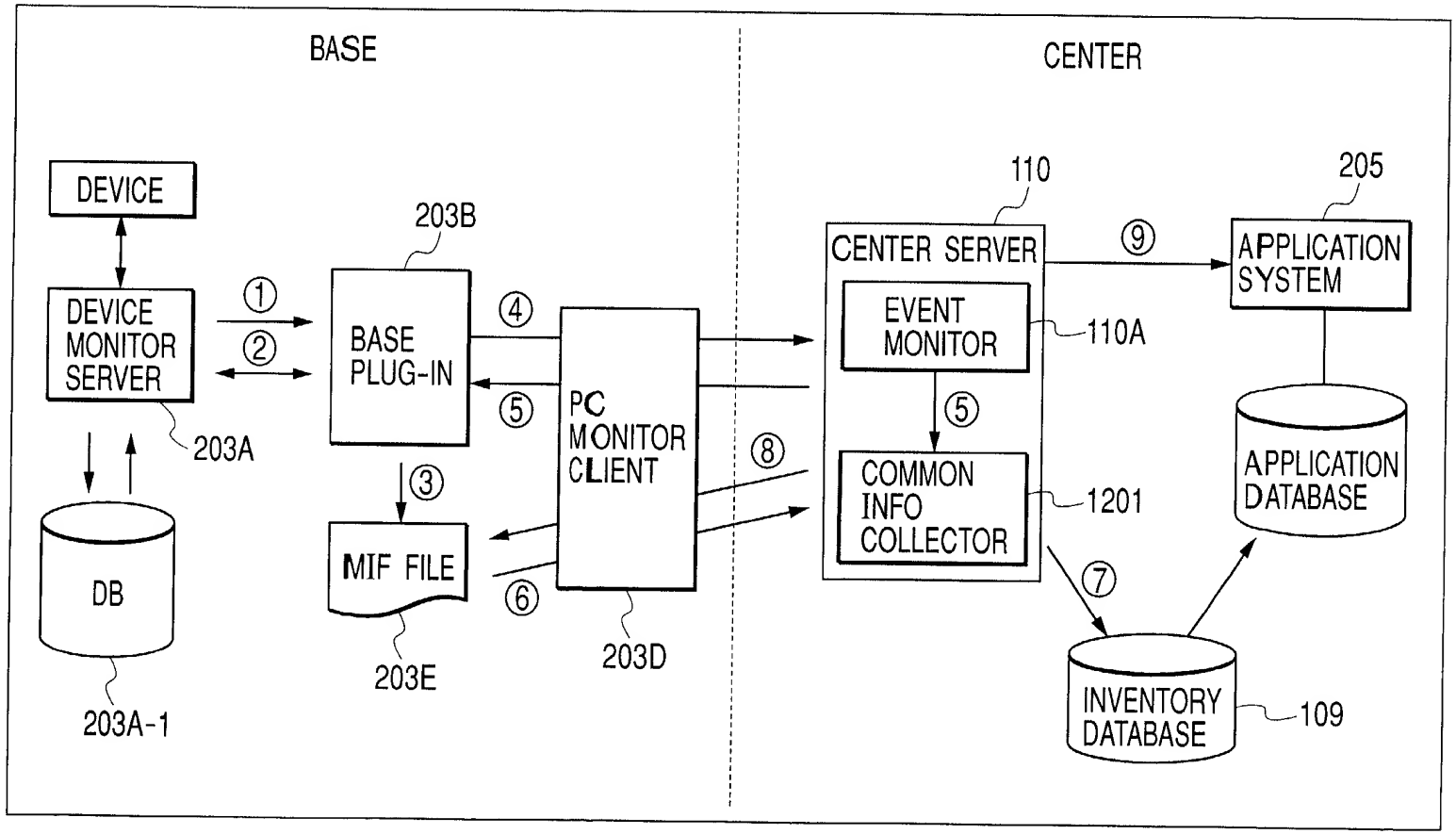


FIG. 13

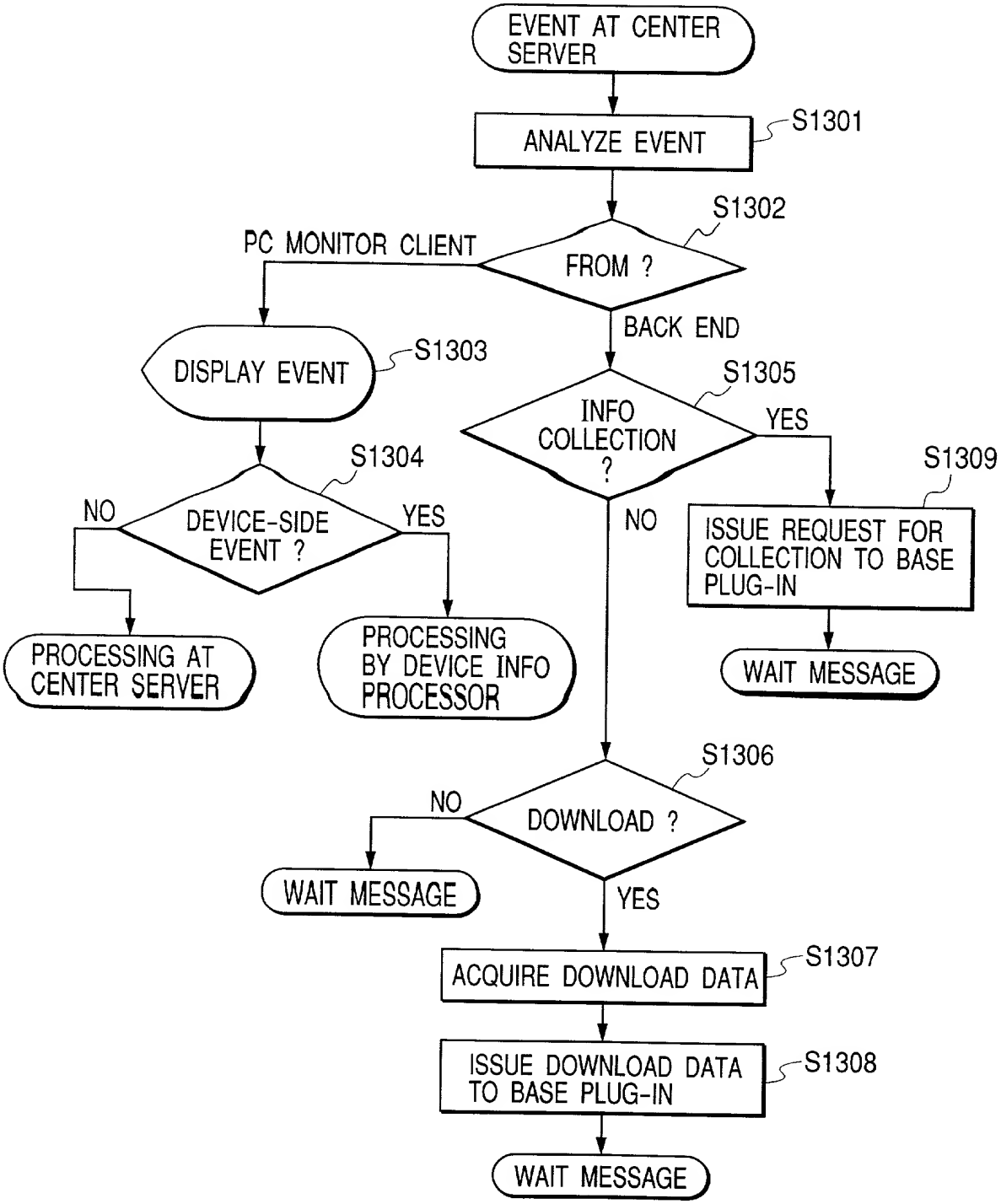

EVENT AT CENTER SERVER
ANALYZE EVENT
S1301
S1302
FROM ?
PC MONITOR CLIENT
BACK END
DISPLAY EVENT
S1303
S1305
INFO COLLECTION ?
YES
NO
S1309
ISSUE REQUEST FOR COLLECTION TO BASE PLUG-IN
WAIT MESSAGE
S1304
DEVICE-SIDE EVENT ?
NO
YES
PROCESSING AT CENTER SERVER
PROCESSING BY DEVICE INFO PROCESSOR
S1306
DOWNLOAD ?
NO
YES
WAIT MESSAGE
ACQUIRE DOWNLOAD DATA
S1307
ISSUE DOWNLOAD DATA TO BASE PLUG-IN
S1308
WAIT MESSAGE

FIG. 14

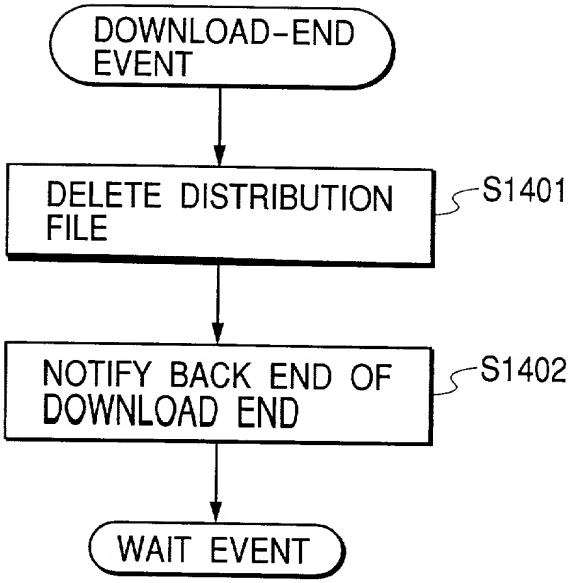

DOWNLOAD-END EVENT
DELETE DISTRIBUTION FILE
S1401
NOTIFY BACK END OF DOWNLOAD END
S1402
WAIT EVENT

FIG. 15

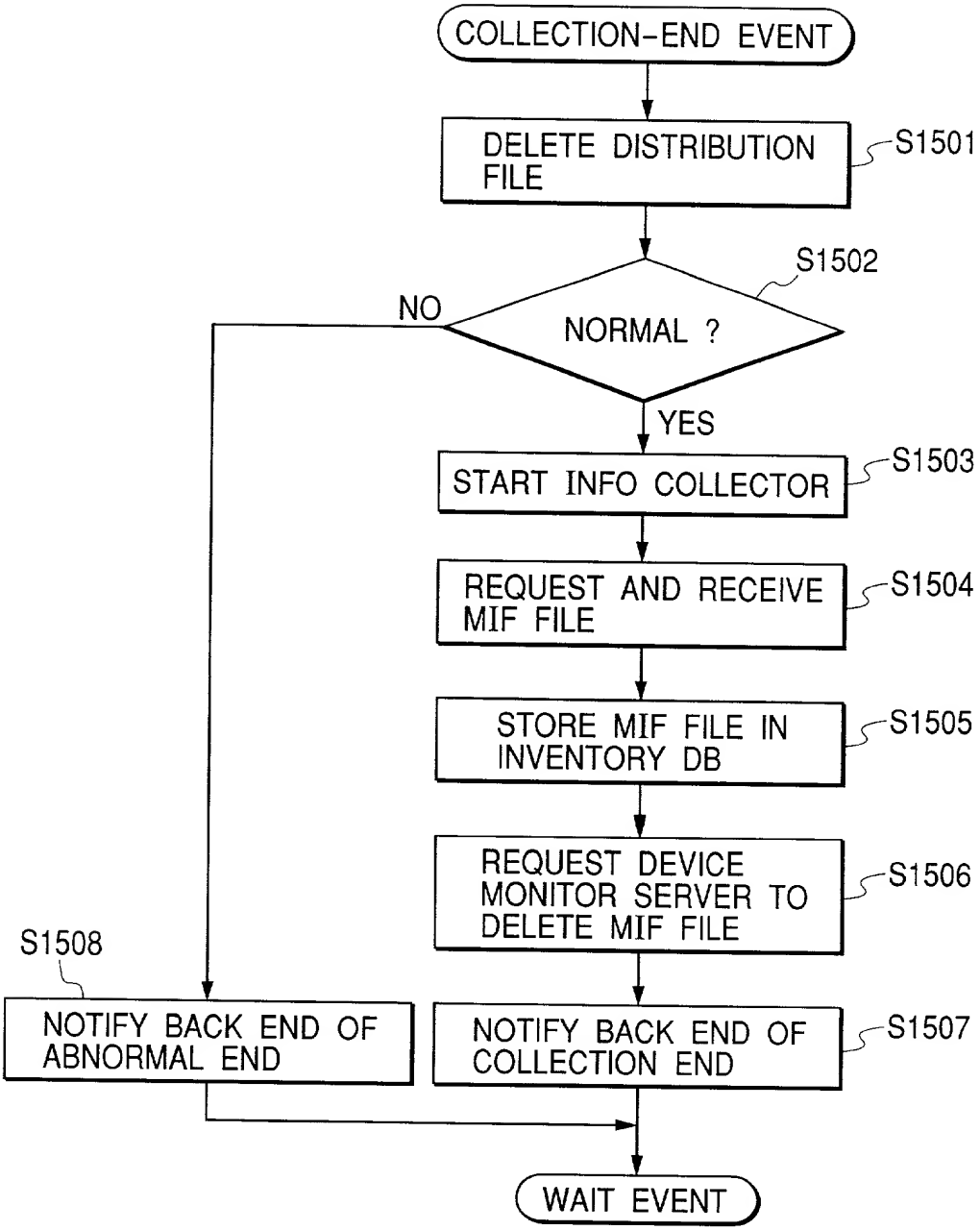

COLLECTION-END EVENT
DELETE DISTRIBUTION FILE
S1501
S1502
NO
NORMAL ?
YES
START INFO COLLECTOR
S1503
REQUEST AND RECEIVE MIF FILE
S1504
STORE MIF FILE IN INVENTORY DB
S1505
REQUEST DEVICE MONITOR SERVER TO DELETE MIF FILE
S1506
S1508
NOTIFY BACK END OF ABNORMAL END
NOTIFY BACK END OF COLLECTION END
S1507
WAIT EVENT

FIG. 16

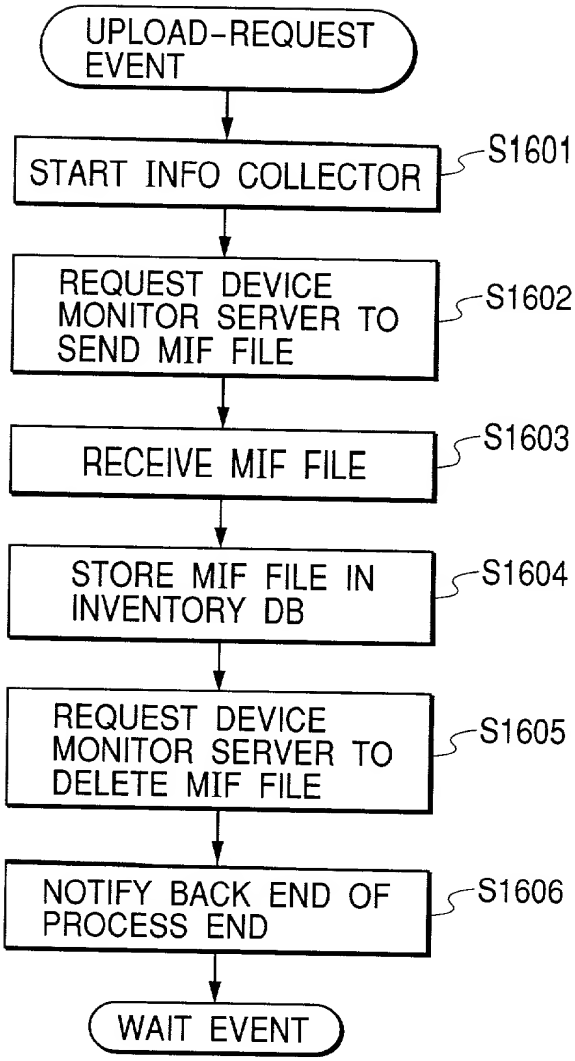

UPLOAD-REQUEST EVENT
START INFO COLLECTOR
S1601
REQUEST DEVICE MONITOR SERVER TO SEND MIF FILE
S1602
RECEIVE MIF FILE
S1603
STORE MIF FILE IN INVENTORY DB
S1604
REQUEST DEVICE MONITOR SERVER TO DELETE MIF FILE
S1605
NOTIFY BACK END OF PROCESS END
S1606
WAIT EVENT

FIG. 17

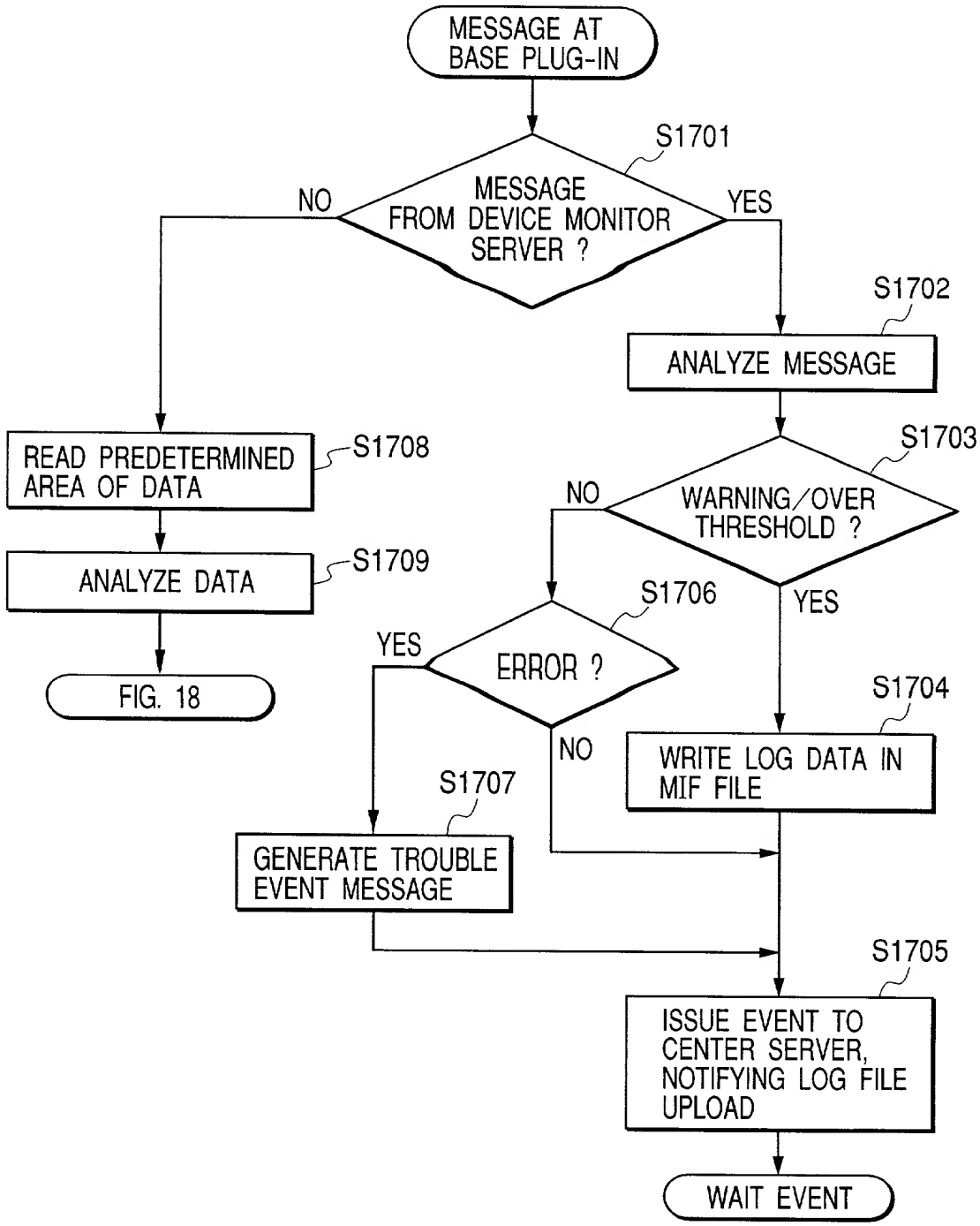

MESSAGE AT BASE PLUG-IN
S1701
MESSAGE FROM DEVICE MONITOR SERVER ?
NO
YES
S1702
ANALYZE MESSAGE
S1703
WARNING/OVER THRESHOLD ?
NO
YES
S1706
ERROR ?
YES
NO
S1704
WRITE LOG DATA IN MIF FILE
S1707
GENERATE TROUBLE EVENT MESSAGE
S1705
ISSUE EVENT TO CENTER SERVER, NOTIFYING LOG FILE UPLOAD
WAIT EVENT
S1708
READ PREDETERMINED AREA OF DATA
S1709
ANALYZE DATA
FIG. 18

FIG. 18

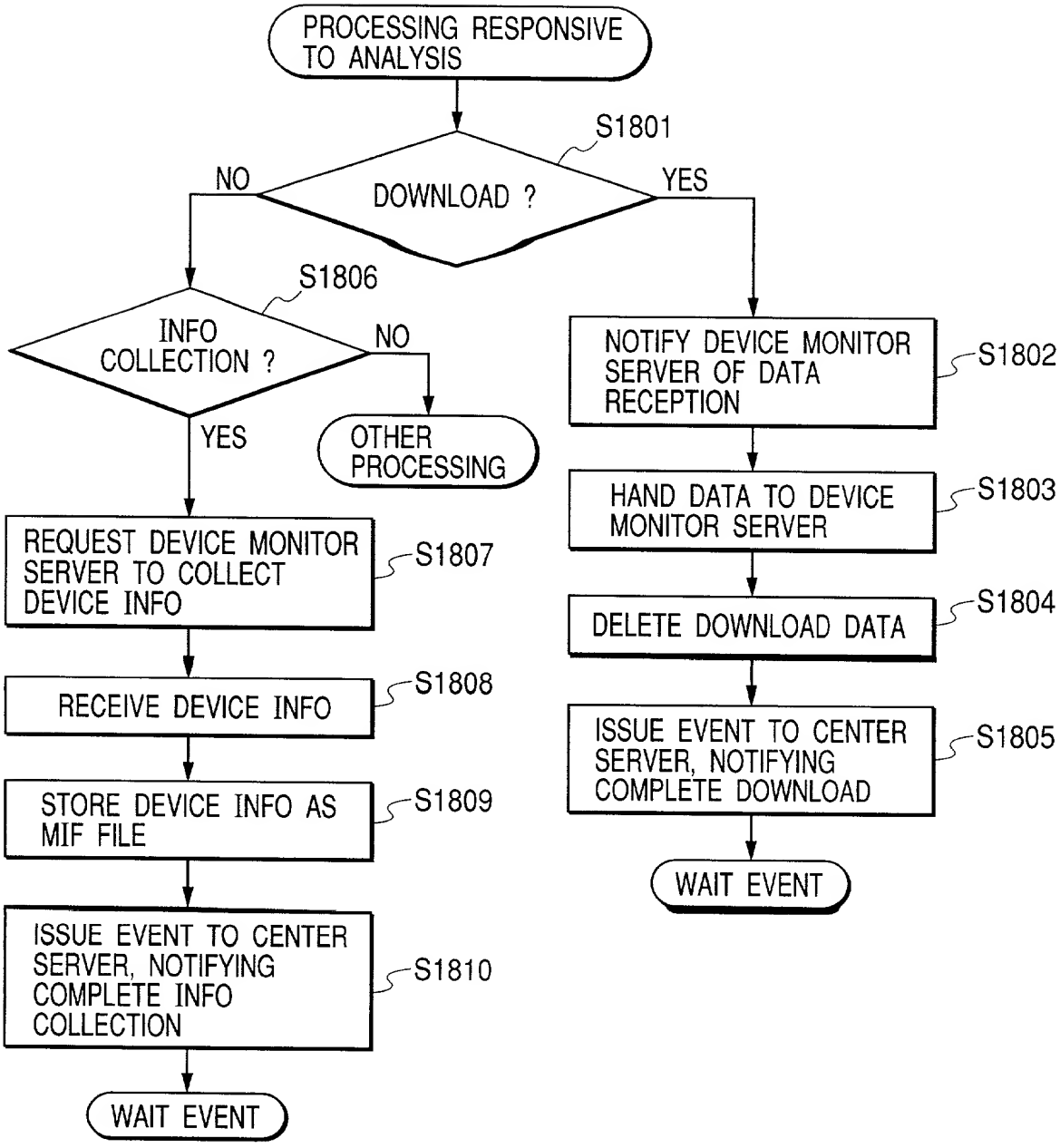

PROCESSING RESPONSIVE TO ANALYSIS
S1801
DOWNLOAD ?
NO
YES
S1806
INFO COLLECTION ?
NO
YES
OTHER PROCESSING
REQUEST DEVICE MONITOR SERVER TO COLLECT DEVICE INFO
S1807
RECEIVE DEVICE INFO
S1808
STORE DEVICE INFO AS MIF FILE
S1809
ISSUE EVENT TO CENTER SERVER, NOTIFYING COMPLETE INFO COLLECTION
S1810
WAIT EVENT
NOTIFY DEVICE MONITOR SERVER OF DATA RECEPTION
S1802
HAND DATA TO DEVICE MONITOR SERVER
S1803
DELETE DOWNLOAD DATA
S1804
ISSUE EVENT TO CENTER SERVER, NOTIFYING COMPLETE DOWNLOAD
S1805
WAIT EVENT

FIG. 19

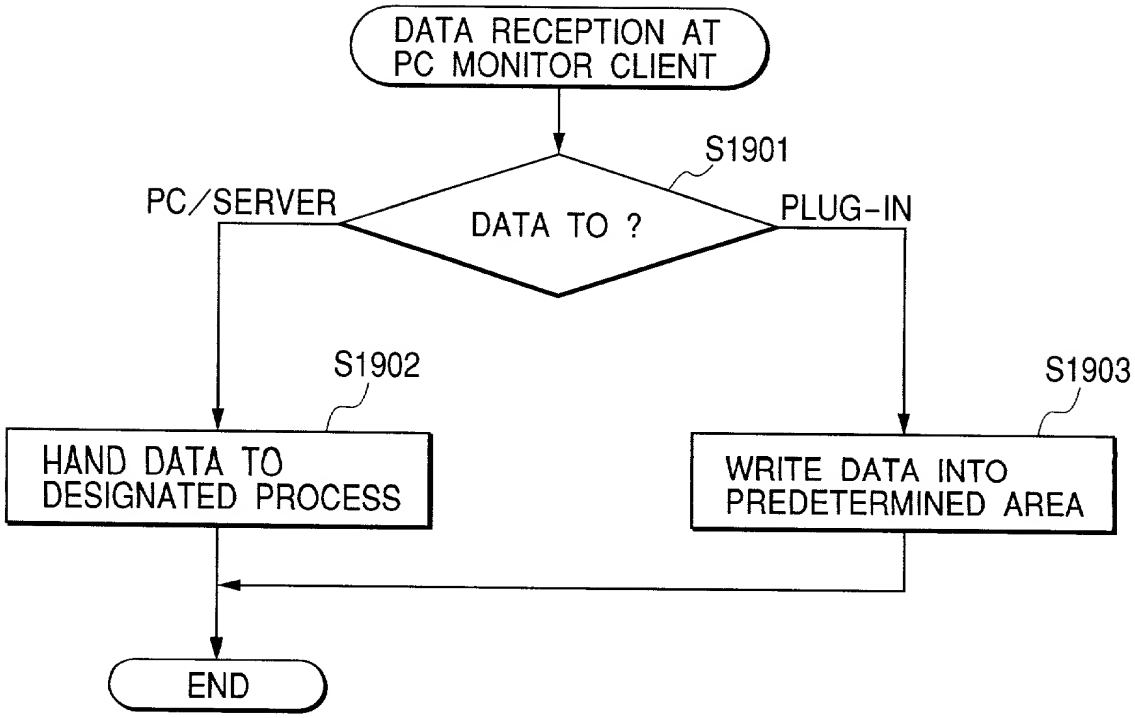

DATA RECEPTION AT PC MONITOR CLIENT
S1901
DATA TO ?
PC/SERVER
PLUG-IN
S1902
S1903
HAND DATA TO DESIGNATED PROCESS
WRITE DATA INTO PREDETERMINED AREA
END

FIG. 20

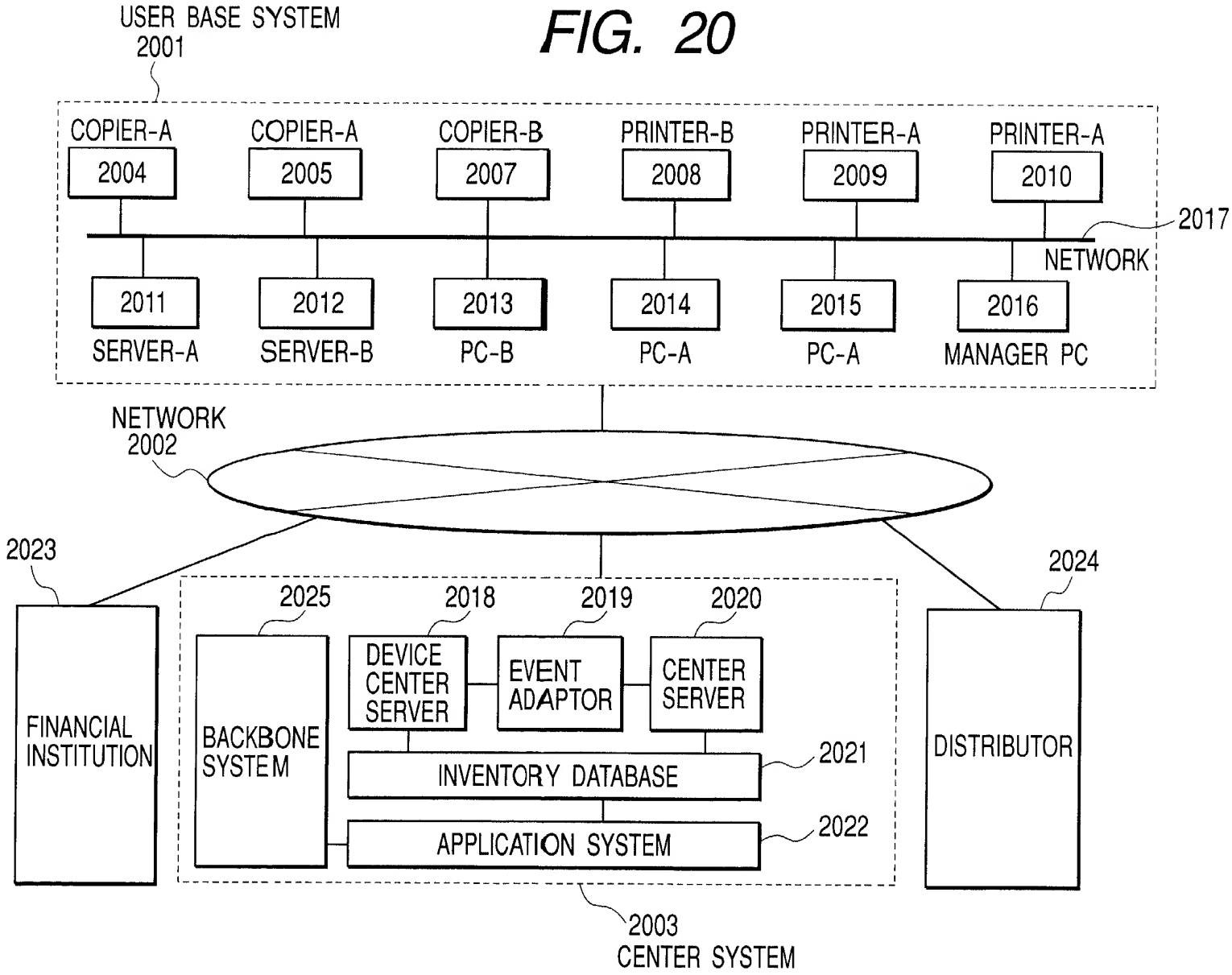
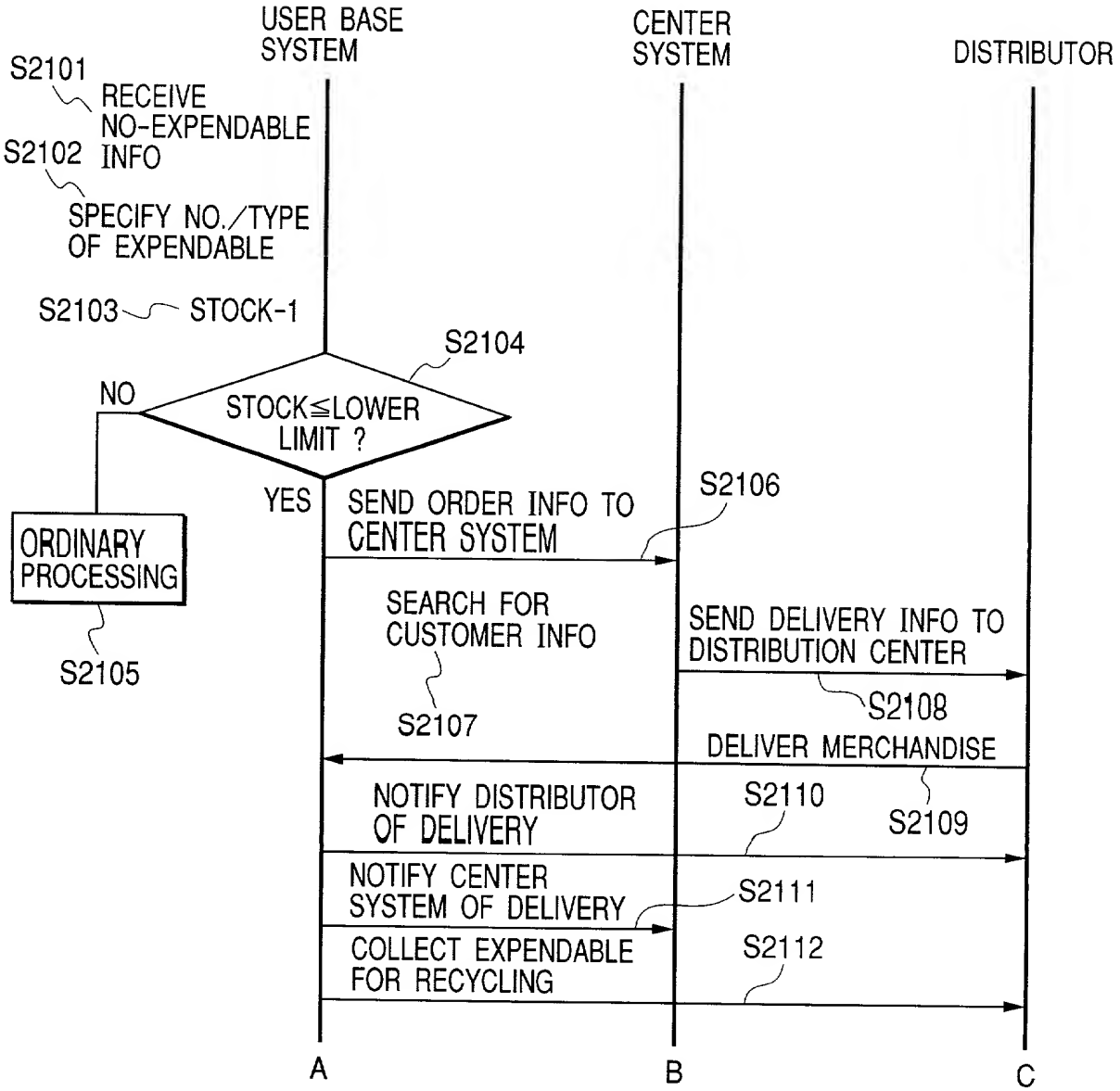

USER BASE SYSTEM
2001
COPIER-A
2004
COPIER-A
2005
COPIER-B
2007
PRINTER-B
2008
PRINTER-A
2009
PRINTER-A
2010
2017
NETWORK
2011
SERVER-A
2012
SERVER-B
2013
PC-B
2014
PC-A
2015
PC-A
2016
MANAGER PC
NETWORK
2002
2023
FINANCIAL INSTITUTION
2025
BACKBONE SYSTEM
2018
DEVICE CENTER SERVER
2019
EVENT ADAPTOR
2020
CENTER SERVER
2021
INVENTORY DATABASE
2022
APPLICATION SYSTEM
2024
DISTRIBUTOR
2003
CENTER SYSTEM

FIG. 21


USER BASE SYSTEM
CENTER SYSTEM
DISTRIBUTOR
S2101
RECEIVE NO-EXPENDABLE INFO
S2102
SPECIFY NO./TYPE OF EXPENDABLE
S2103
STOCK-1
S2104
NO
STOCK≦LOWER LIMIT ?
YES
ORDINARY PROCESSING
S2105
SEND ORDER INFO TO CENTER SYSTEM
S2106
SEARCH FOR CUSTOMER INFO
S2107
SEND DELIVERY INFO TO DISTRIBUTION CENTER
S2108
DELIVER MERCHANDISE
S2109
NOTIFY DISTRIBUTOR OF DELIVERY
S2110
NOTIFY CENTER SYSTEM OF DELIVERY
S2111
COLLECT EXPENDABLE FOR RECYCLING
S2112
A
B
C

EP 0 971 328 A2

FIG. 22

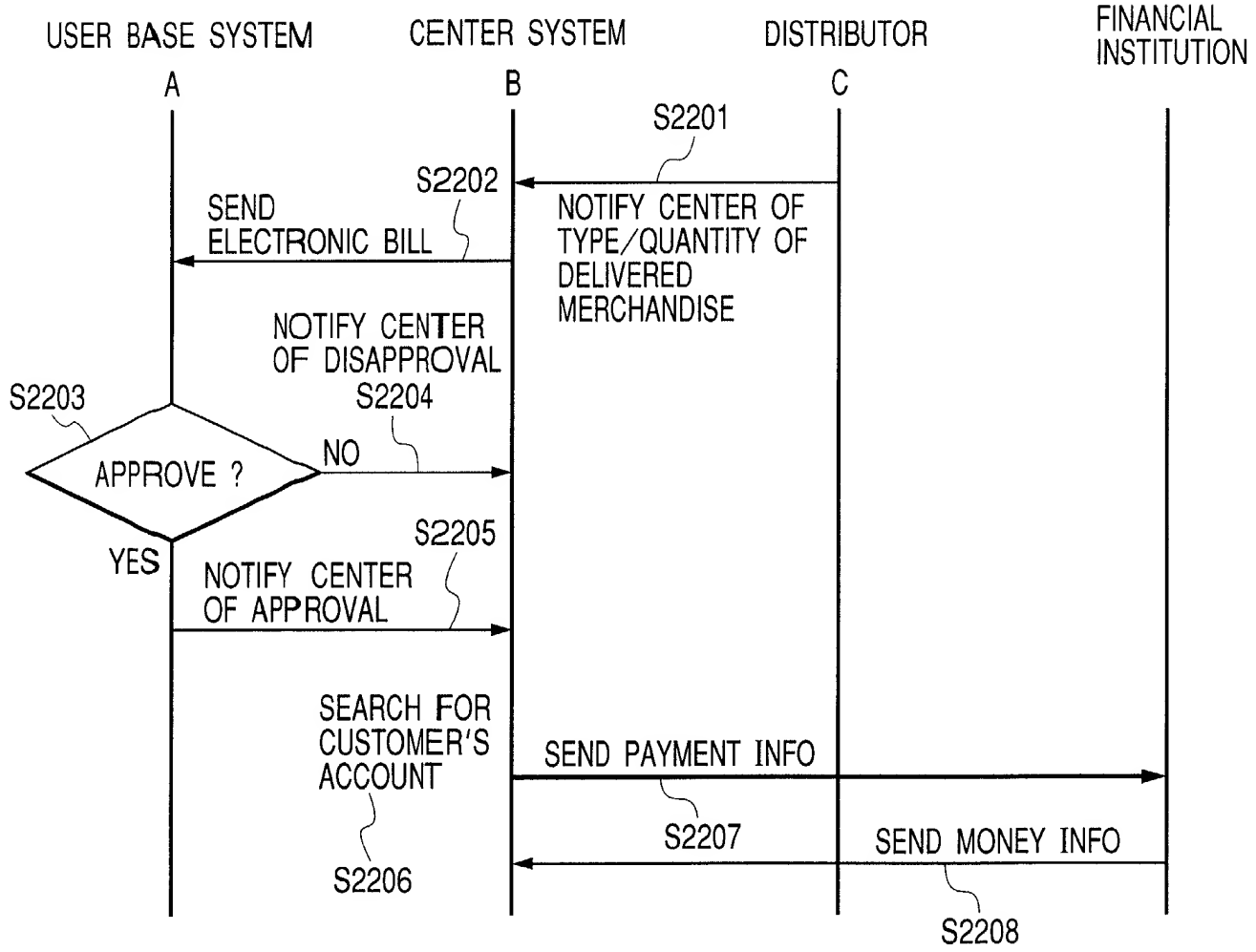


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FIG. 23

2301 DEVICE CAT NO./ SERIAL NO.	2302 MAC ADDRESS	2303 IP ADDRESS	2304 EXPENDABLE	2305 2ND LAST REPLACED	2306 LAST REPLACED	2307 NEXT
ABC12343	000085123456	111.222.333.444	AAA	7/12	9/12	11/12
BCD98763	000085777777	111.222.333.555	AAA	8/2	10/12	12/2
CDE55553	000085333333	111.222.333.666	DDD-B	8/30	9/30	10/30
CDE55553	000085333333	111.222.333.666	DDD-C	7/21	9/21	11/21
CDE55553	000085333333	111.222.333.666	DDD-M	8/16	10/10	12/16
CDE55553	000085333333	111.222.333.666	DDD-Y	8/20	10/20	12/20

FIG. 24

2401 EXPENDABLE TYPE	2402 STOCK	2403 ORDER THRESHOLD	2404 ORDER UNIT	2405 STATUS
AAA	5	2	4	STOCK OK
BBB	3	1	2	STOCK OK
CCC	2	1	2	ORDER NEXT
DDD-B	1	1	2	ORDERED
DDD-C	1	1	2	REQUIRED TO ORDER
DDD-M	2	1	2	ORDER NEXT
DDD-Y	3	1	2	STOCK OK

FIG. 25

2501 BILL NO.	2502 DATE OF BILL	2503 APPROVE/ DISAPPROVE	2504 APPROVE/ DISAPPROVE DATE	2505 REASON FOR DISAPPROVAL
1879-0001	9/30	APPROVE	9/30	
1879-0002	10/15	APPROVE	10/16	
1879-0003	10/30	DISAPPROVE	10/30	1 EP-J RETURNED
1879-0004	11/10			

FIG. 26

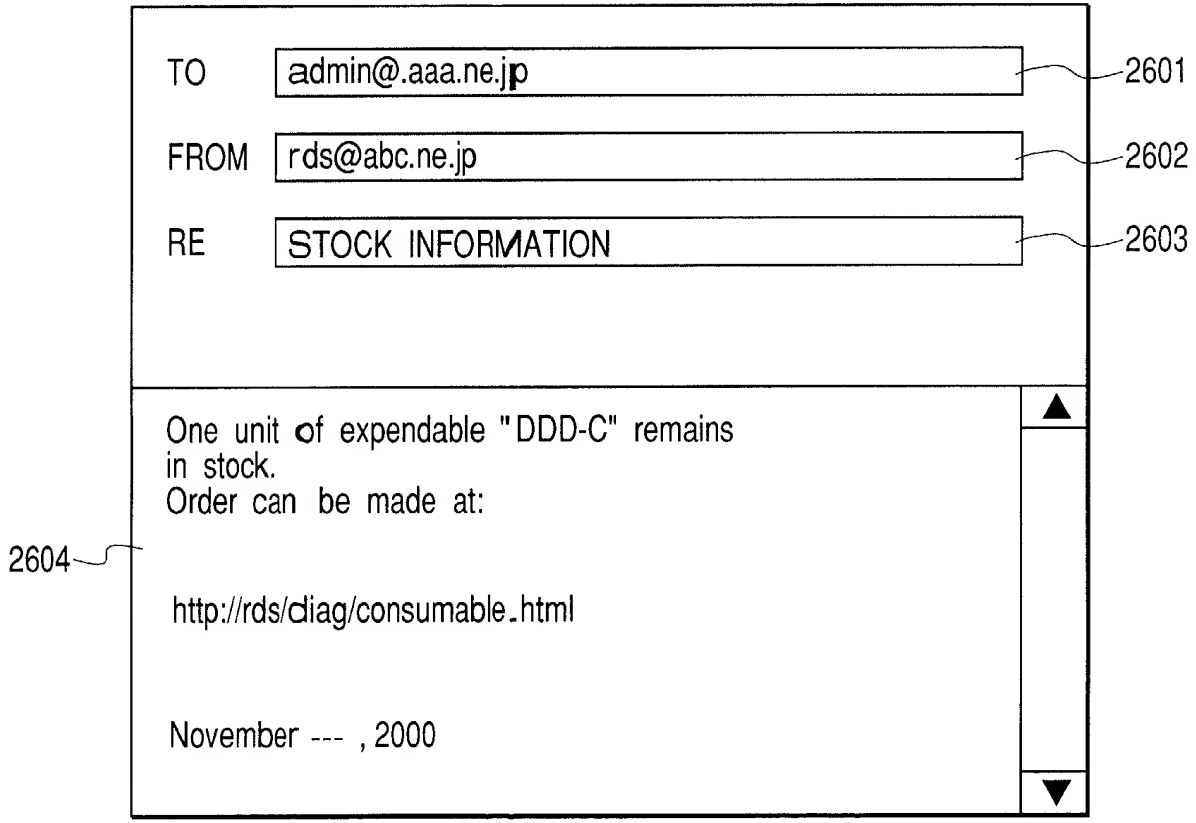

TO
admin@.aaa.ne.jp
2601
FROM
rds@abc.ne.jp
2602
RE
STOCK INFORMATION
2603
One unit of expendable "DDD-C" remains in stock.
Order can be made at:
2604
http://rds/diag/consumable_html
November --- , 2000

FIG. 27

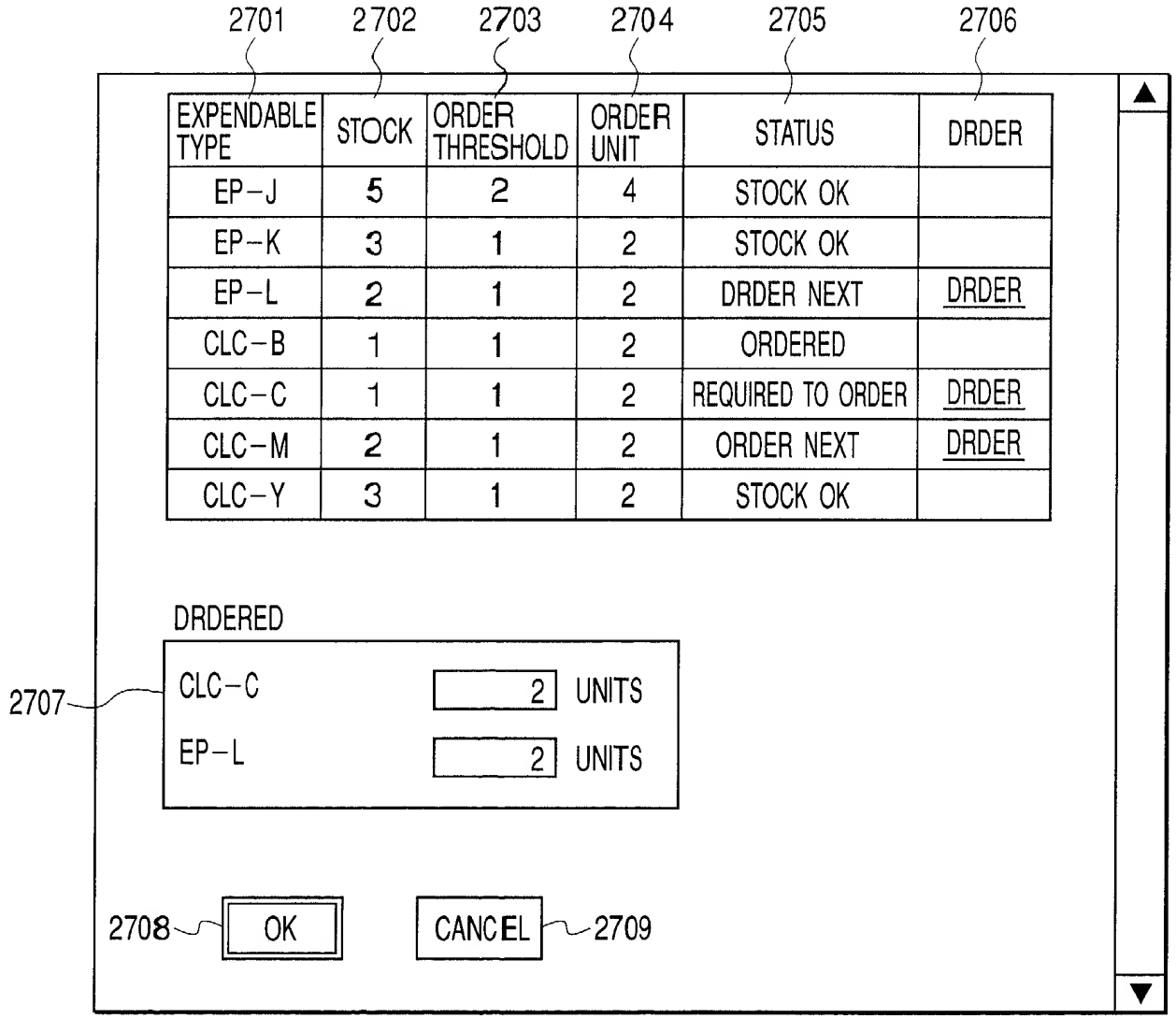

2701
2702
2703
2704
2705
2706
EXPENDABLE TYPE
STOCK
ORDER THRESHOLD
ORDER UNIT
STATUS
DRDER
EP-J 5 2 4 STOCK OK
EP-K 3 1 2 STOCK OK
EP-L 2 1 2 DRDER NEXT DRDER
CLC-B 1 1 2 ORDERED
CLC-C 1 1 2 REQUIRED TO ORDER DRDER
CLC-M 2 1 2 ORDER NEXT DRDER
CLC-Y 3 1 2 STOCK OK
DRDERED
2707
CLC-C 2 UNITS
EP-L 2 UNITS
2708
OK
CANCEL
2709

FIG. 28

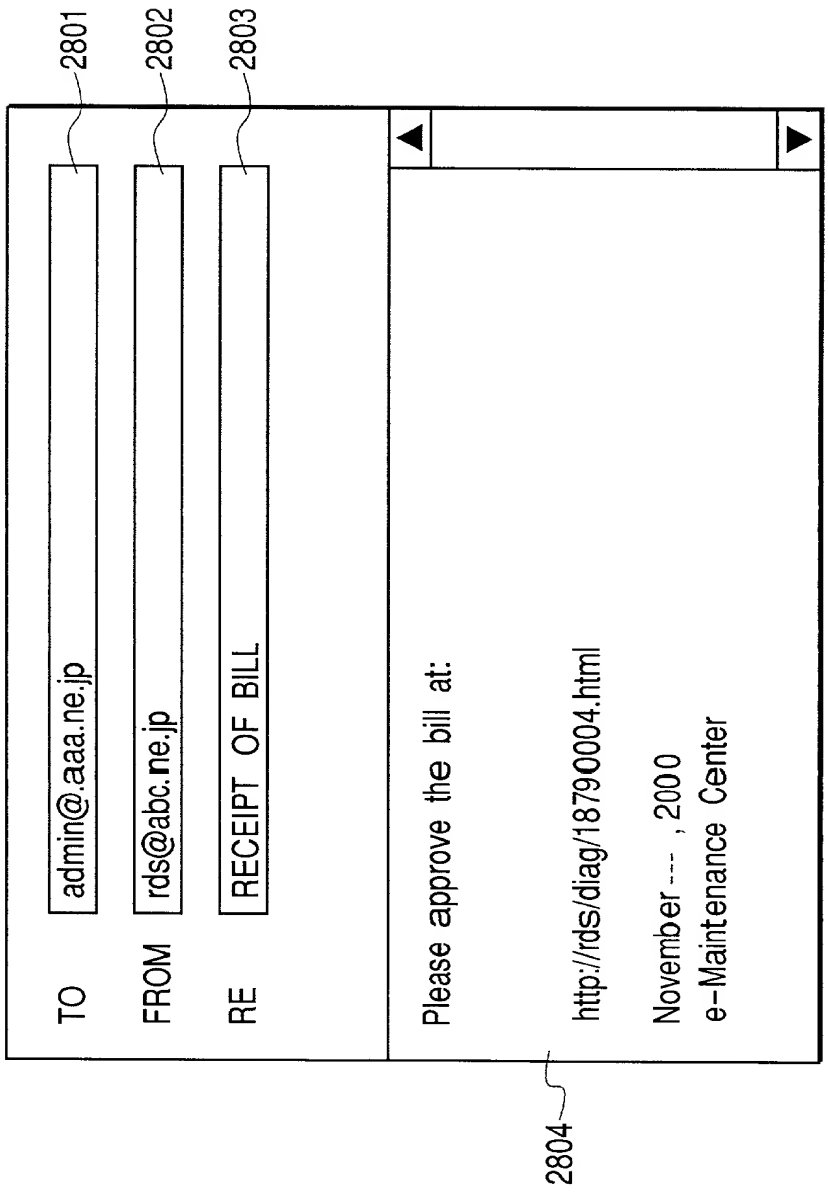

2801
2802
2803
TO
admin@.aaa.ne.jp
FROM
rds@abc.ne.jp
RE
RECEIPT OF BILL
Please approve the bill at:
http://rds/diag/1879004.html
November --- , 2000
e-Maintenance Center
2804

FIG. 29

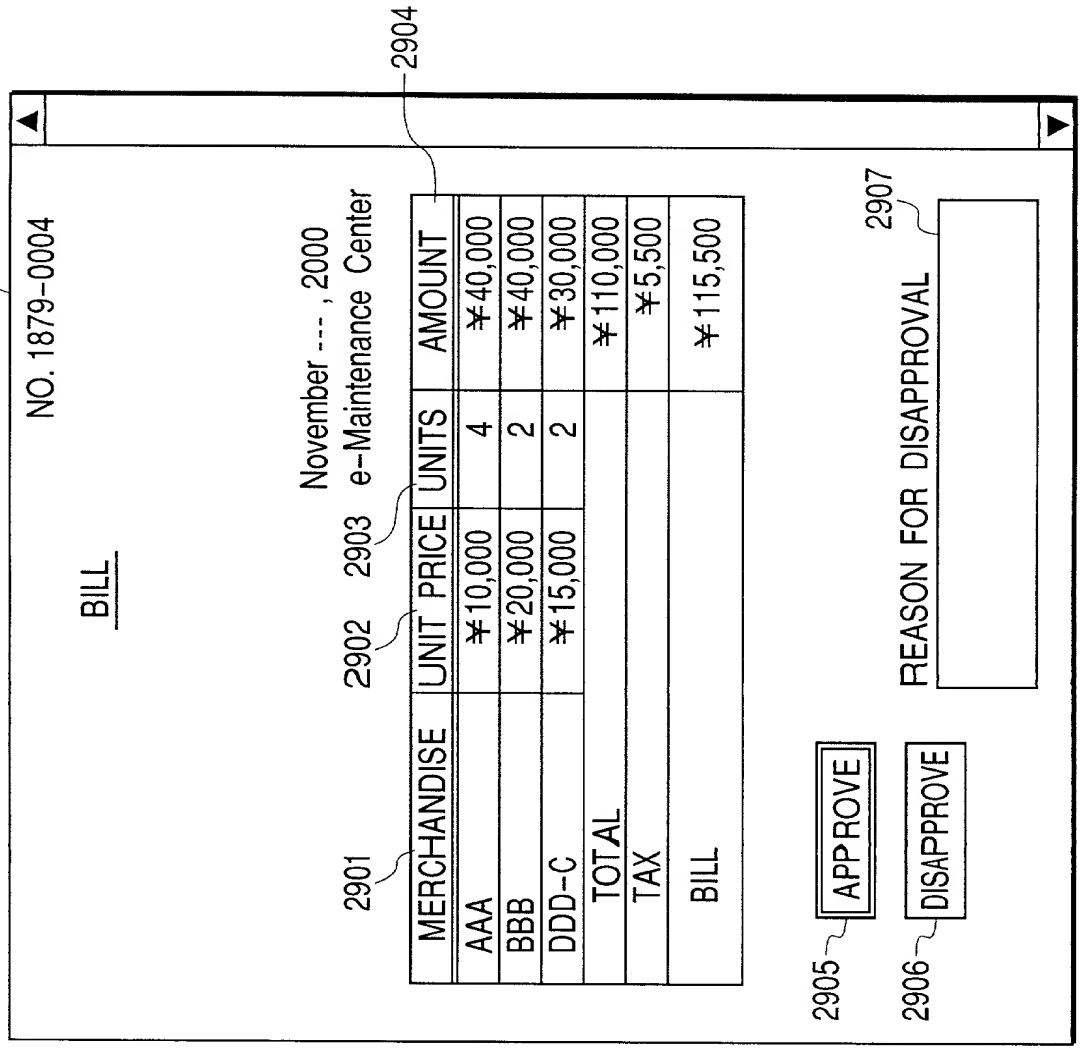

2908
NO. 1879-0004
BILL
November --- , 2000
e-Maintenance Center
2904
2901
2902
2903
MERCHANDISE
UNIT PRICE
UNITS
AMOUNT
AAA
¥10,000
4
¥40,000
BBB
¥20,000
2
¥40,000
DDD-C
¥15,000
2
¥30,000
TOTAL
¥110,000
TAX
¥5,500
BILL
¥115,500
2905
APPROVE
2906
DISAPPROVE
2907
REASON FOR DISAPPROVAL

FIG. 30

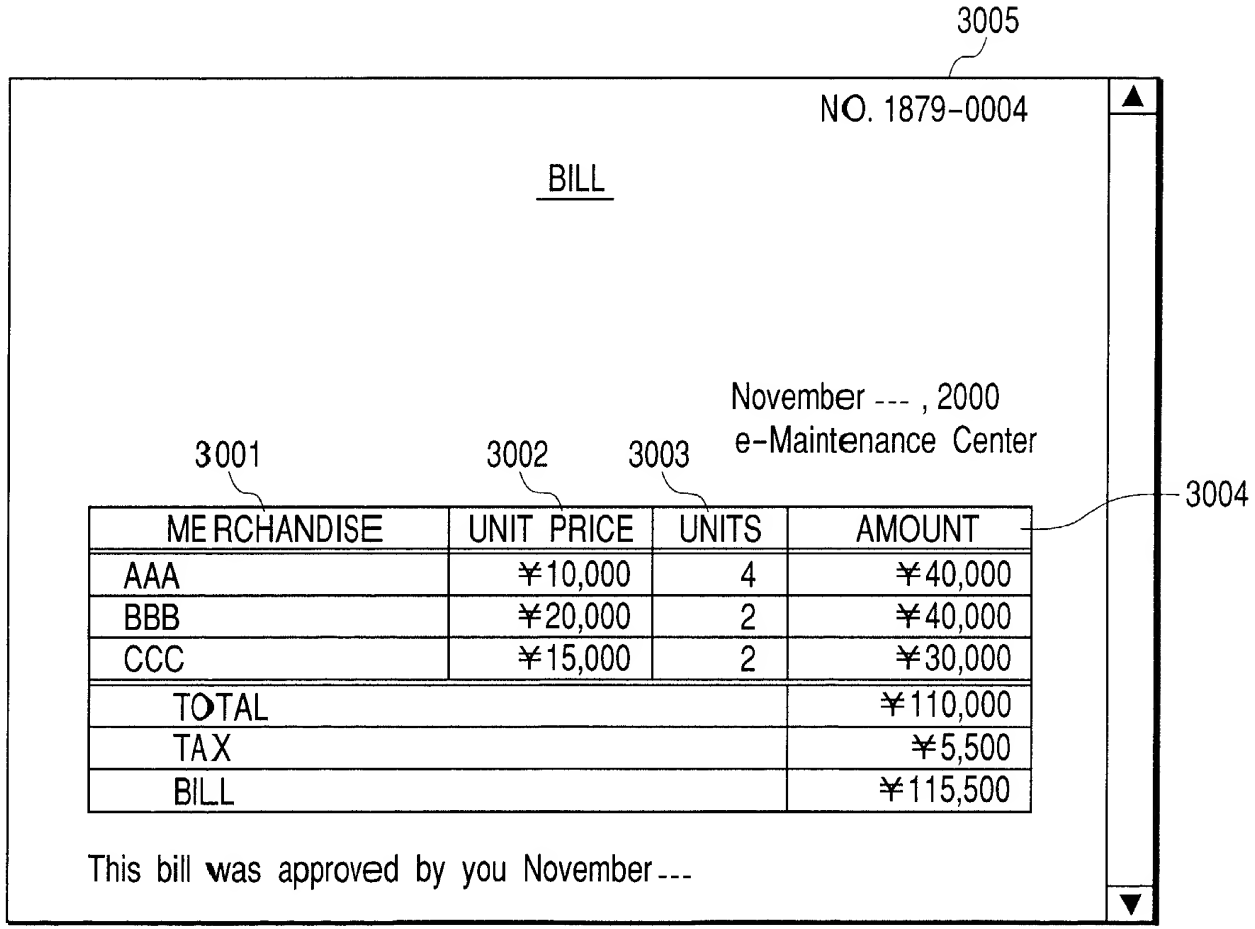

3005
NO. 1879-0004
BILL
November --- , 2000
e-Maintenance Center
3001
3002
3003
3004
MERCHANDISE
UNIT PRICE
UNITS
AMOUNT
AAA
¥10,000
4
¥40,000
BBB
¥20,000
2
¥40,000
CCC
¥15,000
2
¥30,000
TOTAL
¥110,000
TAX
¥5,500
BILL
¥115,500
This bill was approved by you November---

FIG. 31

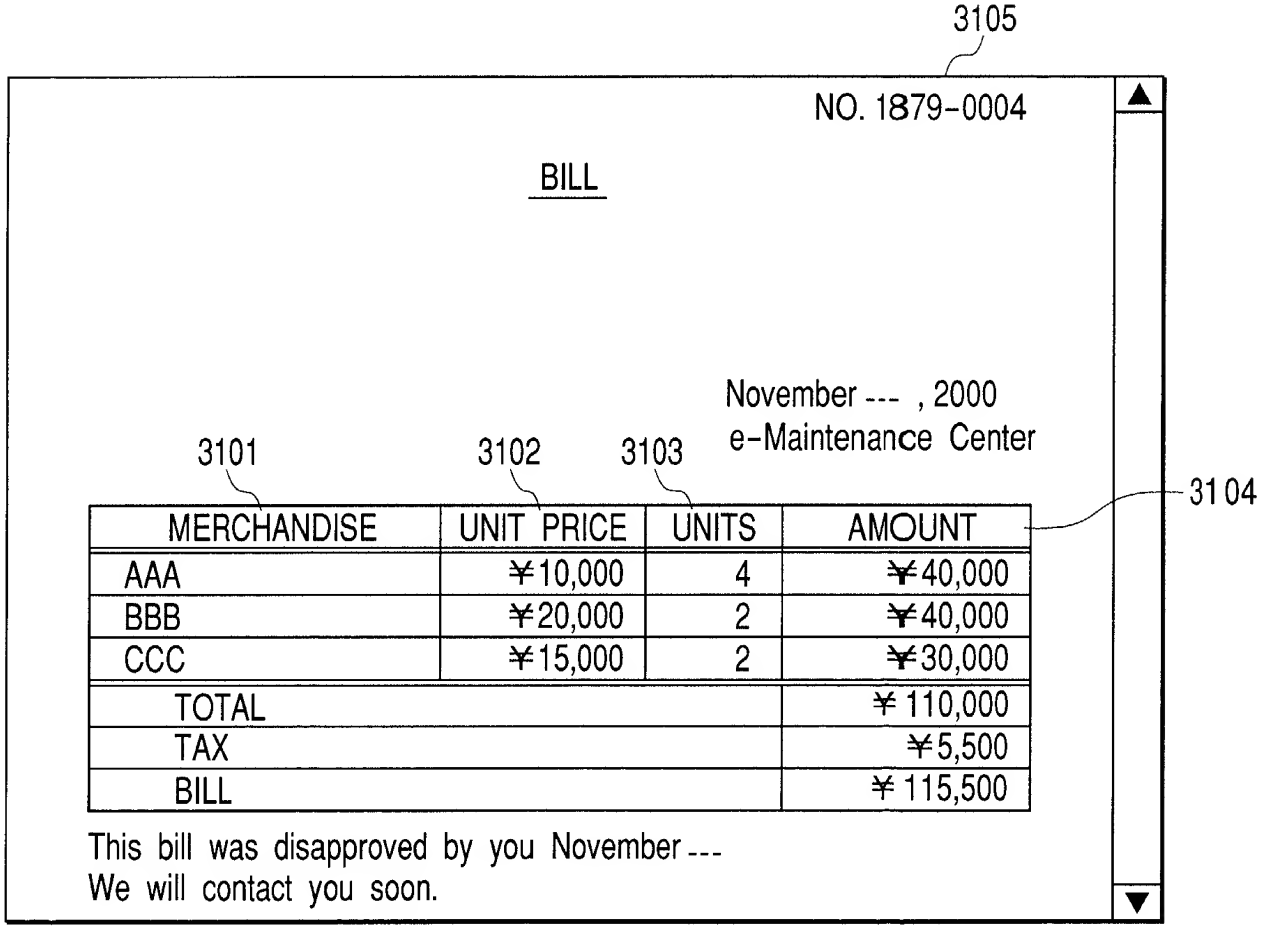

3105
NO. 1879-0004
BILL
November --- , 2000
e-Maintenance Center
3101
3102
3103
3104
MERCHANDISE
UNIT PRICE
UNITS
AMOUNT
AAA
¥10,000
4
¥40,000
BBB
¥20,000
2
¥40,000
CCC
¥15,000
2
¥30,000
TOTAL
¥110,000
TAX
¥5,500
BILL
¥115,500
This bill was disapproved by you November ---
We will contact you soon.

FIG. 32

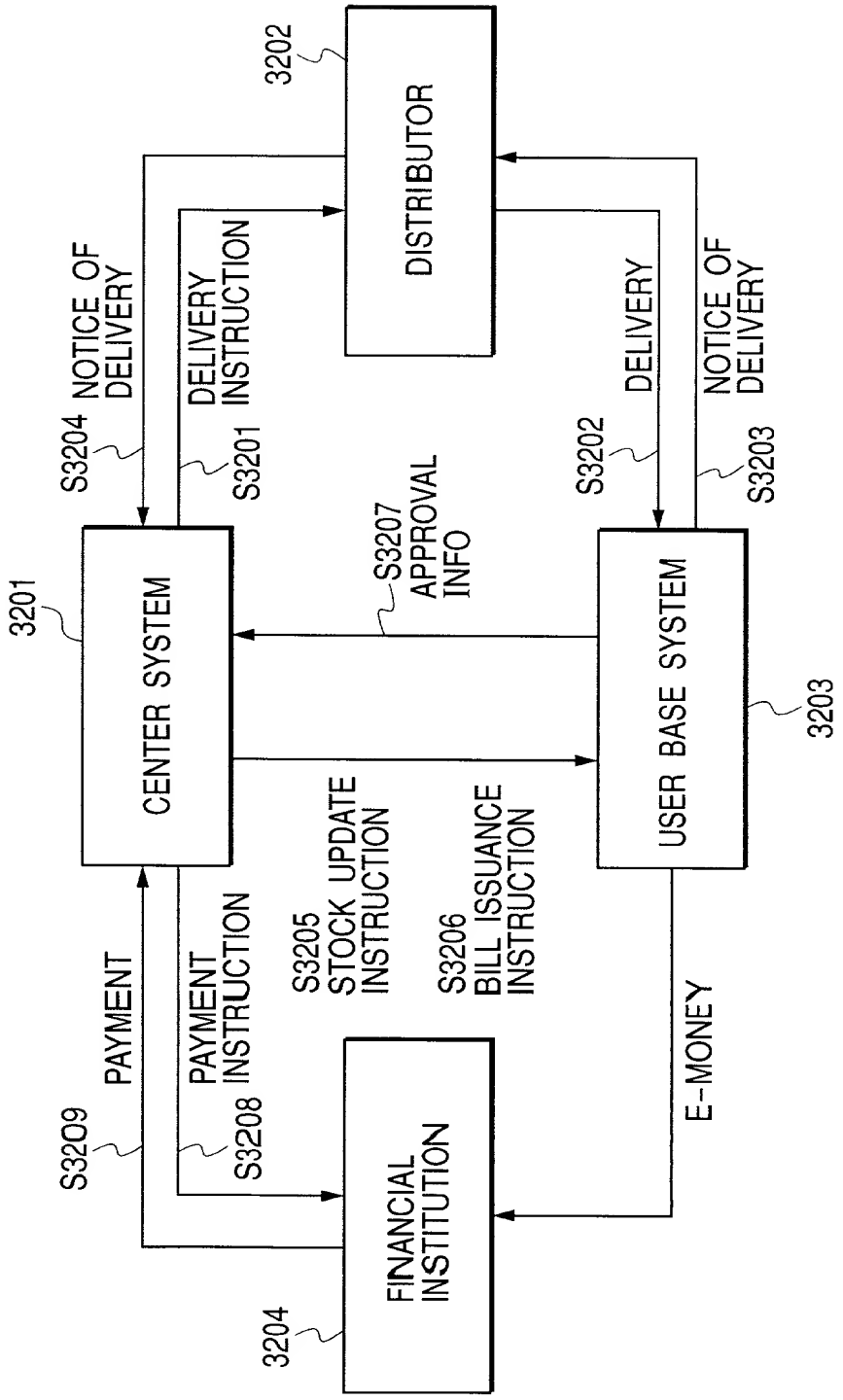

3202
DISTRIBUTOR
S3204 NOTICE OF DELIVERY
S3201 DELIVERY INSTRUCTION
S3202 DELIVERY
S3203 NOTICE OF DELIVERY
3201
CENTER SYSTEM
S3207 APPROVAL INFO
USER BASE SYSTEM
3203
S3205 STOCK UPDATE INSTRUCTION
S3206 BILL ISSUANCE INSTRUCTION
S3209 PAYMENT
S3208 PAYMENT INSTRUCTION
E-MONEY
FINANCIAL INSTITUTION
3204

FIG. 33

FIG. 33A

FIG. 33A	FIG. 33B

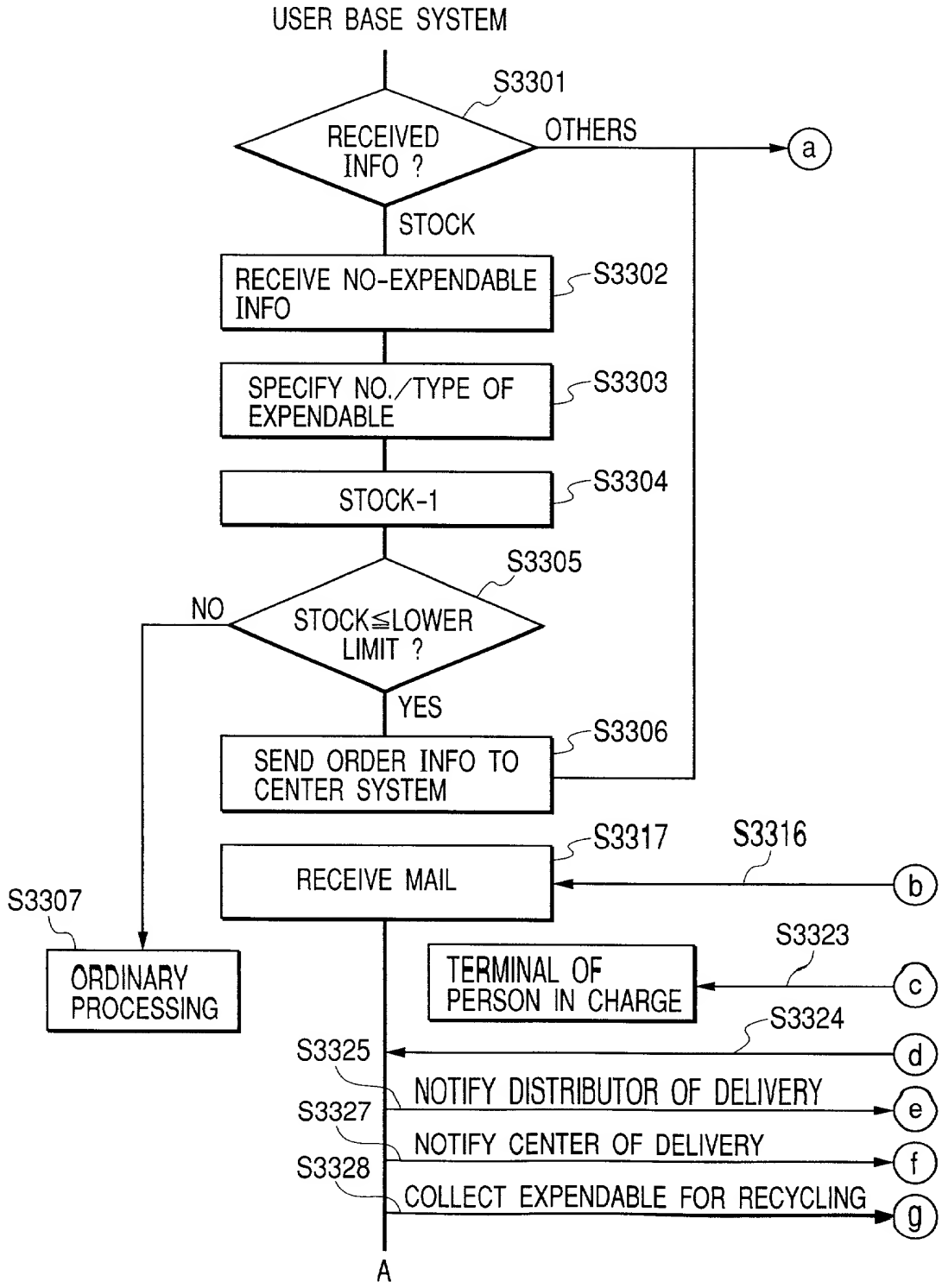


FIG. 33B

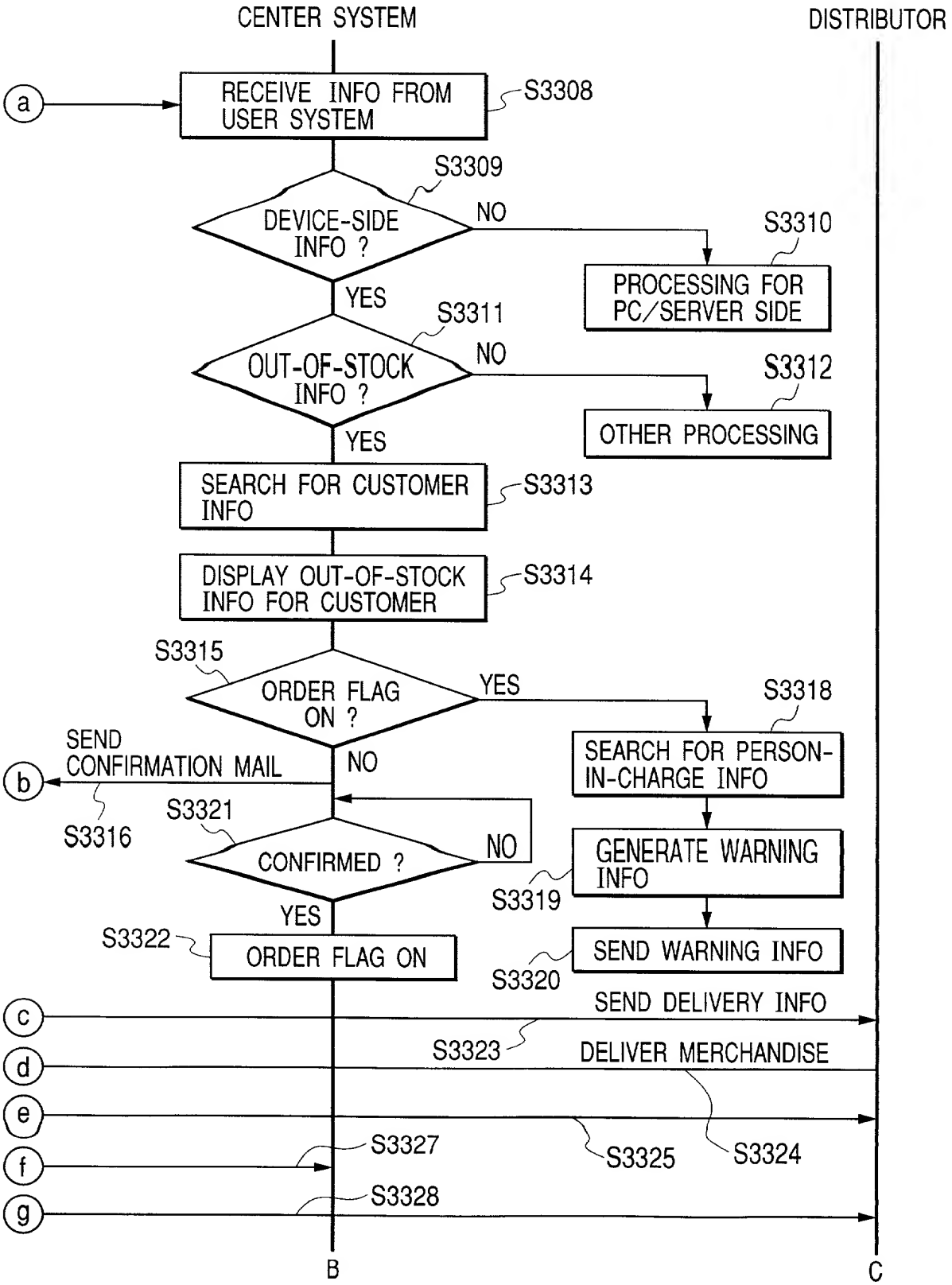

CENTER SYSTEM
DISTRIBUTOR
a
RECEIVE INFO FROM USER SYSTEM
S3308
S3309
DEVICE-SIDE INFO ?
NO
S3310
PROCESSING FOR PC/SERVER SIDE
YES
S3311
OUT-OF-STOCK INFO ?
NO
S3312
OTHER PROCESSING
YES
SEARCH FOR CUSTOMER INFO
S3313
DISPLAY OUT-OF-STOCK INFO FOR CUSTOMER
S3314
S3315
ORDER FLAG ON ?
YES
S3318
SEARCH FOR PERSON-IN-CHARGE INFO
SEND CONFIRMATION MAIL
b
S3316
NO
S3321
CONFIRMED ?
NO
GENERATE WARNING INFO
S3319
YES
S3322
ORDER FLAG ON
SEND WARNING INFO
S3320
SEND DELIVERY INFO
c
S3323
DELIVER MERCHANDISE
d
e
S3327
S3325
S3324
f
S3328
g
B
C

FIG. 34

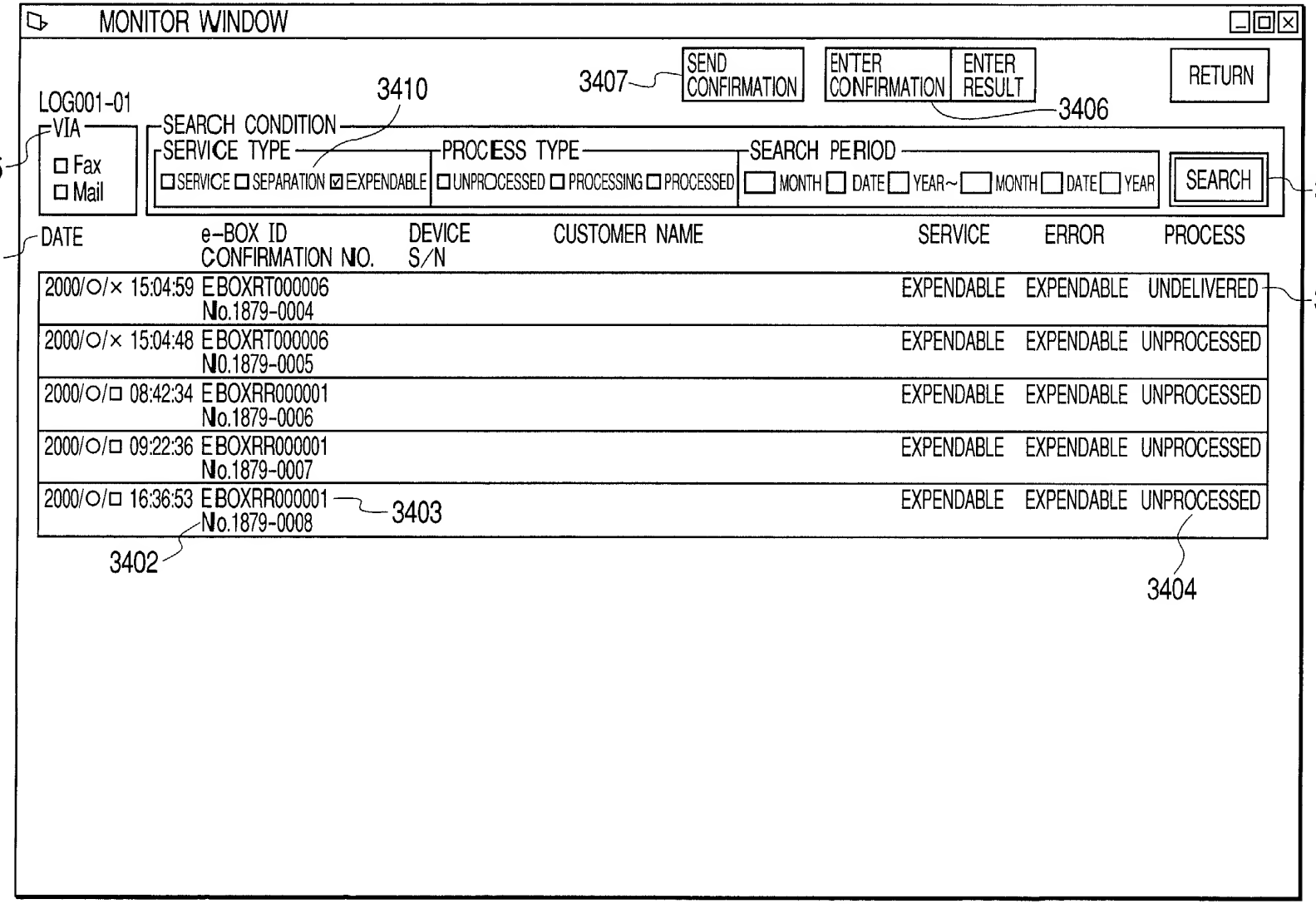

MONITOR WINDOW
LOG001-01
VIA
Fax
Mail
3405
SEARCH CONDITION
3410
SERVICE TYPE
SERVICE SEPARATION EXPENDABLE
PROCESS TYPE
UNPROCESSED PROCESSING PROCESSED
SEARCH PERIOD
MONTH DATE YEAR~ MONTH DATE YEAR
SEARCH
3408
3407
SEND CONFIRMATION
ENTER CONFIRMATION
ENTER RESULT
3406
RETURN
3401
DATE
e-BOX ID
CONFIRMATION NO.
DEVICE S/N
CUSTOMER NAME
SERVICE
ERROR
PROCESS
2000/○/× 15:04:59 EBOXRT000006 No.1879-0004 EXPENDABLE EXPENDABLE UNDELIVERED
3409
2000/○/× 15:04:48 EBOXRT000006 No.1879-0005 EXPENDABLE EXPENDABLE UNPROCESSED
2000/○/□ 08:42:34 EBOXRR000001 No.1879-0006 EXPENDABLE EXPENDABLE UNPROCESSED
2000/○/□ 09:22:36 EBOXRR000001 No.1879-0007 EXPENDABLE EXPENDABLE UNPROCESSED
2000/○/□ 16:36:53 EBOXRR000001 No.1879-0008 EXPENDABLE EXPENDABLE UNPROCESSED
3403
3402
3404

FIG. 35

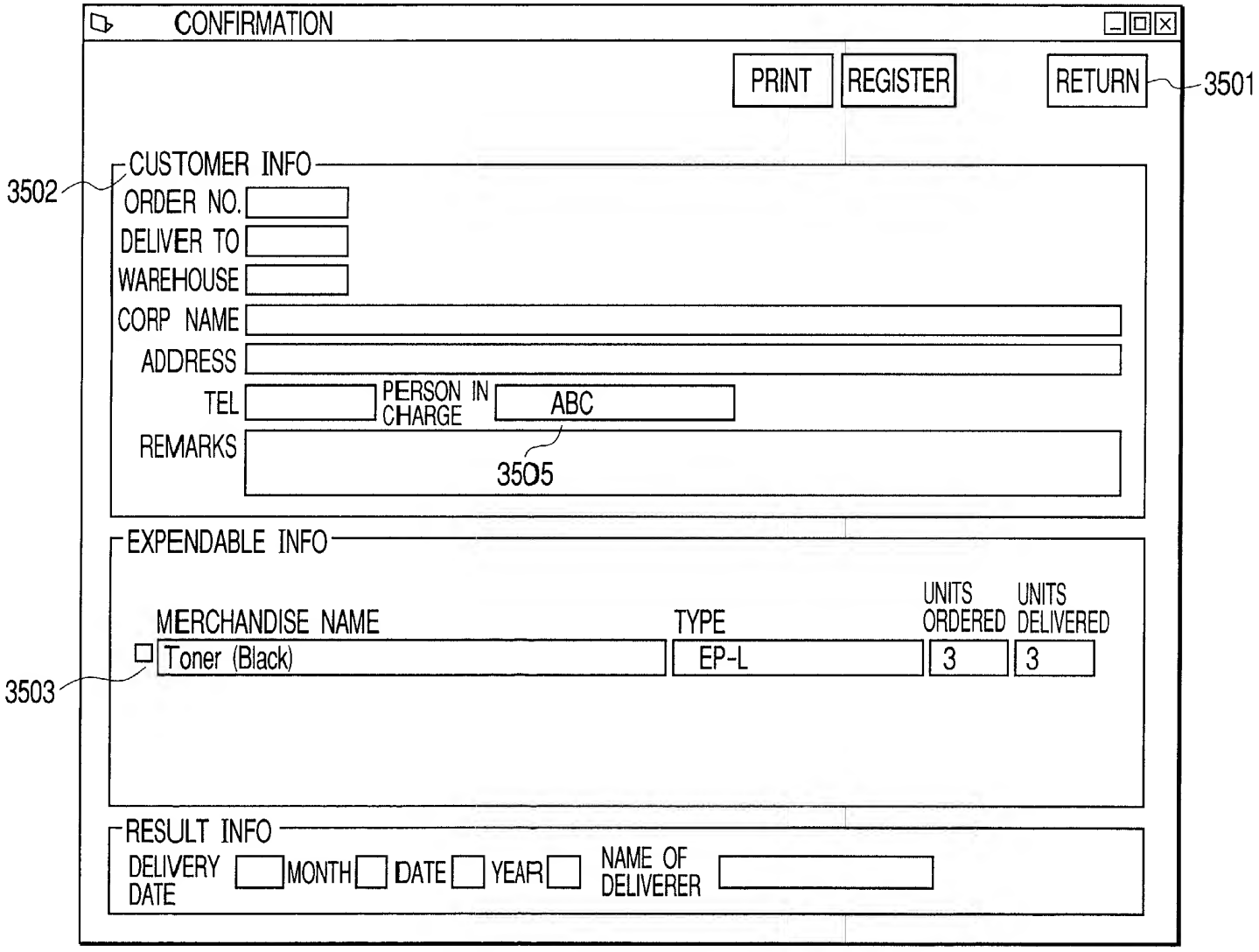
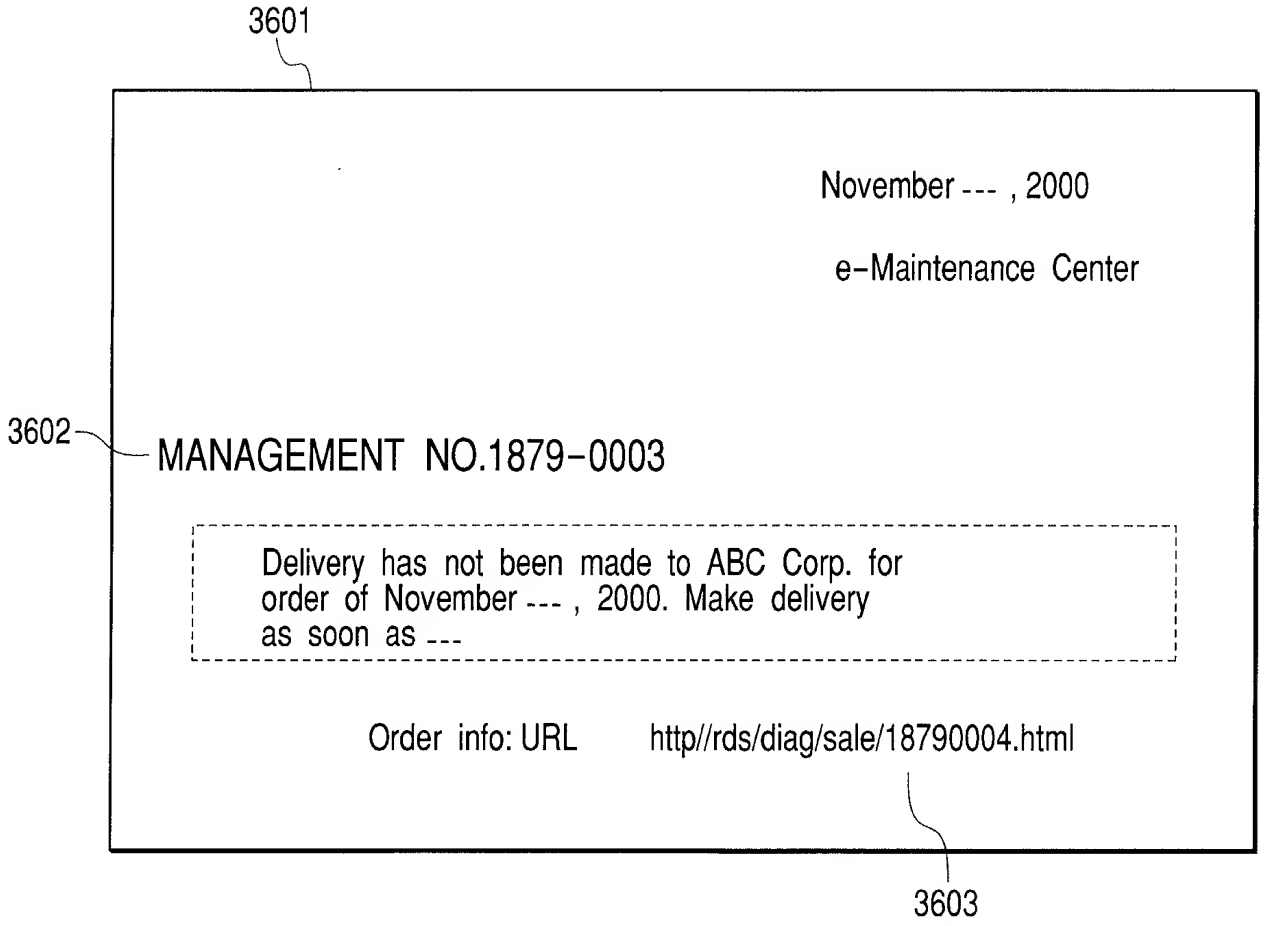

CONFIRMATION
PRINT
REGISTER
RETURN
3501
CUSTOMER INFO
3502
ORDER NO.
DELIVER TO
WAREHOUSE
CORP NAME
ADDRESS
TEL
PERSON IN CHARGE
ABC
REMARKS
3505
EXPENDABLE INFO
MERCHANDISE NAME
TYPE
UNITS ORDERED
UNITS DELIVERED
3503
Toner (Black)
EP-L
3
3
RESULT INFO
DELIVERY DATE
MONTH
DATE
YEAR
NAME OF DELIVERER

FIG. 36


3601
November --- , 2000
e-Maintenance Center
3602
MANAGEMENT NO.1879-0003
Delivery has not been made to ABC Corp. for order of November --- , 2000. Make delivery as soon as ---
Order info: URL
http//rds/diag/sale/18790004.html
3603